

NORTHERN ILLINOIS UNIVERSITY

HANDS-ON SCIENCE

"HOW TO GET STUDENTS MORE ACTIVELY INVOLVED
IN SCIENCE LEARNING TO AVOID SCIENTIFIC ILLITERACY"

In Partial Fulfillment of the
Requirements of the Baccalaureate Degree

With Upper Division Honors

Department of Curriculum and Instruction

by

AMY A. VACULA

DeKalb, Illinois

May 8, 1993

Student name: zf

Approved by: "Bel-A~, _Ur, l", d, Q. LJn: L.n"-JtC...-----

Department of: ~~.~

Date: May 6, 1993

HONORS THESIS ABSTRACT
THESIS SUBMYSSION FORM

Author: Amy Vacula

Thesis Title: "How to get students more actively involved
in ~cience learning to avoid scientific illiteracy."

Advisor: Beth A. Wiegmann

Advisor's Dept: Curriculum

Discipline: Education

and Instruction

Published: No

Year: 1993

Copies Available: Hard copy

Bibliography: Yes

Page Length: 174

Illustrated: Yes

Abstract:

students should be more involved in science learning in order to avoid scientific illiteracy. The purpose of this project is to show that hands-on science is one possible solution. After looking at research about the possible consequences of scientific illiteracy and doing an extensive review of current major literary works dealing with the issue, hands-on science appears to be a possible solution. Many people are afraid of the negative effects in the United States if scientific illiteracy continues to be a problem in our society.

Hands-on science has helped many teachers capture student's curiosity and interest. Students are encouraged to try new things without fear of failure. They are motivated to act on concrete objects which help them retain material more effectively. Piaget streded the use of concrete materials when teaching children concepts. Other theorists agree

with the concepts behind hands-on science as well.

I began my research by looking at major works dealing with scientific illiteracy such as Project 2061: Science For All Americans. After discovering the possible consequences of scientific illiteracy, I began to examine hands-on science. The thematic units I chose to create hands-on science for were: Magnetism & Electricity, Sound, and The Human Body. Since many schools are moving toward the whole language philosophy, I integrated the human body unit throughout the entire curriculum. The units are geared for the third grade level, but they can be adapted to suit higher and lower grade levels. The materials listed are based on a class size of 32 students.

Introduction

Several reports in the past few years have stated that the citizens of the United States have become increasingly deficient in "the area of science.

The Congressional Clearinghouse of the Future released the results of a recent survey of U. S. citizens which reported that: Almost 35 percent believe that radioactive milk can be made safe by boiling it. Less than 50 percent know the earth revolves around the sun once a year. Only 25 percent know that antibiotics are ineffective against viruses. (Staff, 1990,p.3).

If citizens of the United States continue on in this way the United States stands to lose its position as a leader in science and technology. It is up to everyone to look at this problem of scientific illiteracy and become aware of its consequences. For instance, people who are scientifically illiterate will be making important value-laden decisions. They will be voting for or against certain bills which they do not have sufficient knowledge about in order to decide what is best for society.

Therefore, something must be done to attract attention to science and its significance in deciding issues in today's society as well as future societies. It is

clear that some schools no longer consider science as a "basic" and that science is being taught ineffectively. One cause for this is the fact that science has been taught the traditional way using textbooks, worksheets, and lectures. Another reason is the fact that our society cannot reach an agreement upon any course of action which will determine major goals appropriate for achieving scientific literacy.

To be scientifically literate, as stated by, Lowery (1991) citing the American Association for the Advancement of Science's Project 2061 report, means:

- Understanding key concepts
- Being familiar with the natural world, its diversity, and interdependence
- Knowledge that science, technology, and mathematics are interdependent human enterprises with strengths and weaknesses
- Having the ability to think scientifically
- Using scientific knowledge and thinking patterns for personal and social purposes.

Purpose of Project 2061

The purpose of Project 2061, is to suggest ways of achieving scientific literacy. There are three phases to project 2061. The first phase which has been completed, was to "establish a conceptual base for reform by spelling out the knowledge, skills, and attitudes all students should acquire as a consequence of their total school experience from kindergarten through high school" (AAAS, 1989).

The project is currently in the second phase which suggests ideas for reform. Educators and teachers are expected to play a key role in this phase. Finally, phase three will be using these reforms to move a nation toward scientific literacy.

Overview of Cognitive Psychologist's Views on Learning.

It is important to look at what learning theorists say about how students learn before drawing any conclusions. about the most effective way to teach children science

According to Jerome Bruner (Whealon,1992), learning the structure of knowledge rather than endless sets of facts ensures comprehension, memory, mastery, and therefore transfer of learning.

Piaget, on the other hand, believed a person attains knowledge through stages of mental development. He was convinced that hands-on concrete experiences allowed children to retain more information. Concrete experiences are crucial to understanding of abstract concepts about human beings and social systems. Learning activities need to be constructed as closely as possible to the way that children experience and learn those ideas. They should be relevant to them and they should make use of hands-on activities.

Jerome Kagan (Whealon,1992), came up with the idea that the resolution of uncertainty is emotionally satisfying. Giving students problems and conflicts to solve helps them in the mastery of concepts.

Benjamin Bloom (Whealon, 1992), developed a taxonomy about the way people think about knowledge. There are two levels of thinking. There is the lower level thinking which includes knowledge, comprehension, and application. And at the higher level of thinking there is synthesis and evaluation. When questioning students it is imperative to get them thinking at a higher level. For example, it is essential to use the evaluation level when content is being covered so that they will end up building understandings and mastering the concepts.

Ausubel believed that a learner must have a meaningful learning set. The learner must be able to relate the new knowledge to what he already knows and that the learning is meaningful in regard to his or her own structure of knowledge. This means that teachers not only have the students discuss what they know about the topic, but teachers should also show them how the topic taught will tie into what they already know.

Hands-on science

Looking at the problem of scientific illiteracy and what learning theorists have to say about how children learn, the teaching approach that supports both is hands-on science. Hands-on science is "any science lab activity that allows the student to handle, manipulate, or observe a scientific process" (Lumpe, 1991, p. 345). Students interact with materials in a concrete fashion. Some hands-on science has begun to be called hands-on/minds-

on science because in addition to the hands-on part of the activity, another part is geared towards higher order thinking, such as problem solving.

Hands-on activities are multidimensional. According to Lumpe (1991) there are three specific dimensions which are: inquiry, structure, and experimental. The inquiry-based activities do not allow the student "to have a clear understanding of the concept or principle to be learned prior to conducting the activity" (Lumpe, 1991, p. 346). Learners must do the activity in order to discover the principles and concepts. This way students will be able to "internalize" the concepts and principles. The structure dimension "centers around the involvement of students in making decisions concerning the design and planning of an activity's procedures" (Lumpe, 1991, P. 346). The hands-on activities oriented toward the structural dimension can have set guidelines or they can allow the students freedom to make choices regarding how to go about doing an activity. The experimental dimension contains three sub-levels: descriptive, correlational, and experimental. In the descriptive sub-level, the student does not make any links or cause-effect relationships. The correlational sub-level allows the student to interpret data in order to make connections, but still no cause-effect relationships are examined. The cause-effect relationships are identified in the experimental sub-level (Lumpe, 1991, p. 346).

Looking at all of these dimensions of hands-on science, it is difficult to imagine why students aren't all on their way to being scientifically literate. There are many reasons why this is not the case. To begin with, the materials needed are sometimes expensive or difficult to obtain and store. Also, the activities require careful consideration and time in a busy schedule. In addition teachers who were trying hands-on activities for the first time may have given up on it too easily because it requires more time and energy, but also because they were unfamiliar with how to make hands-on science work. Taking this into consideration, many scientists and educators have developed science materials to help teachers implement hands-on science activities.

One Model Teachers Can Follow

"One model from the 1980's was developed by "scientists and educators from the United States Geological Survey which developed a content-oriented curriculum that is logical, builds knowledge week by week, and incorporates a few behavior-management techniques teachers tend to appreciate" (Blueford, 1989, p.20). Each week the teachers prepare the students for the hands-on lab of that particular week. The labs "focus on the ,children's ability to discover, describe, and compare while using facets of other curricula li~e reading, language arts, and even social studies"(Blueford, 1989, p. 20). They refer to it as the Integrating Science, Math, and Technology

Curriculum (I. Science Mate). They established guidelines with specific steps to follow. These are: 1) establish partners, 2) set up work stations, 3) introduce activity, 4) hand out a lab book to every student and 5) conclude the activity (Blueford, 1989, p. 20). For the I. Science Mate program, teachers can establish partners by putting a slow learner with a fast learner or assigning groups. Teachers find that setting up work stations is easier than finding enough material for everyone to do the activity individually. Teachers are encouraged to introduce the activity as briefly as possible to allow students to be actively involved right away. But teachers need to make sure students have enough information to begin the activity without frustration or anxiety. The lab books, for the program, consisted of "activity sheets" that are organized to make a lab book. Providing a conclusion to an activity is essential so that students can express what they explored or observed, liked or did not like, and what they really felt about the subject. Children are a valuable source of information to teachers as they consider developing future lesson plans as well as modifying plans already created.

Other Resources For Hands-on Science

Museums are useful resources in the hands-on science approach. "George W. Tressel, a leader developing informal science education and a senior staff member at the National Science Foundation (NSF), says that the more

informal "hands-on approach of the science museum, leads to more learning" (Chenowith, 1990, p. 48). There is a big difference in demonstrating an experiment for a child and letting the child do it himself or herself. It makes science fun and interesting for the child and captures their cuiosity. "Most important, however, is that museums are nonthreatening, they assume very little prior knowledge and encourage curiosity and inquisitiveness" (Chenowith, 1990, p. 50). There are other resources for hands-on science which can be useful to teachers. The National Science Resources Center (NSRC) has developed programs to bring hands-on science to elementary schools. They send information about materials as well as information about programs that have been used in the past and those being tested now. NSRC's resource guide is entitled, "Science for Children: Resources for Teachers" and they have given these to all the superintendents of schools in the U.S. Besides sending out information, they have also developed "new and innovative science teaching materials designed for teachers who do not have extensive backgrounds in science" (Lapp, 1991, p. 95). NSRC also provides support by holding Elementary Science Leadership Institutes at the Smithsonian Institution for teachers across the nation. NSRC assisted in establishing the Association of Science Materials Centers (ASMAC). ASMAC set up elementary science resource centers to "provide inservice

training for teachers and produce and distribute the science kits used in hands-on programs (Lapp, 1991, p, 95).

Liberty State Park in New York, holds the Liberty Science Center where Americans can go for a "scientific awakening along with patriotic pride"(Cummings, 1990, p. 14).

Its purpose is to use hands-on science activities in order to motivate student's interests in science and technology as well as advance science literacy. The Liberty Science Center is full of "touch, tinker, and feel exhibits" (Cummings, 1990, p. 4).

Conclusion

After reviewing major works relevant to science learning and scientific illiteracy, I must agree that hands-on science is definitely a way to get students more actively involved. Hands-on activities have a positive and long-lasting impact on students and allow for better retention of material. It allows for students to use "the primary impetus behind scientific inquiry-simple curiosity"(Cummings, 1990, p. 14).

I chose to develop hands-on activities for three different science units. These are: magnetism & electricity, sound and the human body. One is from the life sciences(human body), and the other two are physical sciences(magnetism & electricity and sound). Science can be integrated with other subjects throughout the curriculum, especially language arts and mathematics.

Scientific illiteracy can be dealt with if everyone becomes aware of the problem and plays an active role in setting the ball rolling toward reform in the elementary schools. This problem cannot be ignored and avoided without serious consequences. "Americans as a whole simply have not been exposed to science sufficiently or in a way that communicates the knowledge they need to have to cope with the life they will have to lead in the twenty-first century" (Hazen, 1991, p. xv). Hands-on science activities are one way of alleviating this problem in the elementary schools and promoting the scientific understandings so important to America's future.

UNIT INTRODUCTION

of Activities: 10

The following unit on Magnetism & Electricity first deals with the concepts individually. Then, it deals with the connections between the two concepts. The lessons in this unit were made to go in this order. All of these lessons can be adapted to suit higher or lower grade levels.

MAGNETISM & ELECTRICITY

RATIONALE: Students should know that magnets are not merely toys, but they have scientific characteristics and can be used in a variety of ways in our society.

OBJECTIVES:

1. Students will state what a magnet is composed of.
2. Students will sort objects by what a magnet can and cannot pick up.
3. Students will draw pictures of objects that attract magnets.
4. Students will record results of their group.
5. Students will discuss their results as a class.
6. Students will draw conclusions based upon observations.

MATERIALS:

"How To Begin" and "Keeping Records" sheets, B safety pins, B erasers, B pieces of cardboard, B pencils, B plastic spoons, B nails, B pieces of chalk, B wooden blocks, B small stones, B magnets

STEPS:

1. Teacher writes the word 'magnet' on the chalkboard.
2. Ask students if anyone can tell you what the word means and tell us what a magnet does.
3. Write responses on chalkboard.
4. Teacher tells students that they will be allowed to experiment in groups to find out what types of objects magnets will pick up.
5. Hand out the "How To Begin" sheet and "Keeping Records" sheet and have students begin experimenting.

6. Teacher stands back and lets students discover.
7. After a given period of time, teacher draws the class together to discuss their results.
8. Teacher records observations on board.
9. Compare to previous observations made in the beginning of class.
10. Teacher concludes lesson by summarizing material covered and having a student summarize the material also.
11. Students will have time to draw pictures of objects that magnets can pick up.

KEY QUESTIONS:

1. What is a magnet?
2. What is a magnet made of?
3. What are some objects that a magnet can pick up?
Cannot pick up?
4. What other observations did you make?
5. Did you enjoy this experiment? Why or 'why not?

TEST QUESTIONS:

1. A magnet is made of _____.
2. Name two things a magnet can pick up.
3. Name two things a magnet cannot pick up.

How To -n-e!JIn

1. Gather the following materials:
pencil, eraser, piece of cardboard,
safety pin, plastic spoon, nail, penny,
chalk, wooden block, small stone,
magnet.

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3. -gec.or->d YOv\iv"" resLl\1 S 0{1.
"Y,eepl(l~ K~co"cb" sheet.

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Abstract

Yes

Object	No	Yes
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RATIONALE: Students should know about the forces between magnets because they are used in everyday society and are around them all the time.

OBJECTIVES:

1. Students will observe that two unlike magnets will attract when held together.
2. Students will observe that two like bar magnets will repel when held together.
3. Students will predict what will happen if you place magnets together.
4. Students will perform hands-on experiments with magnets.
5. Students will locate and label the poles of a bar magnet.
6. Students will use problem solving to discover the missing poles.
7. Students will record observations.
8. Students will draw conclusions based upon experimentation.
9. Students will report results to the class.

MATERIALS:

"How To Begin", "Predictions", and "Record Results" sheets, sixteen labeled magnets, eight unlabeled magnets

STEPS:

1. Teacher will review material previously covered.
2. Explain what the experiment is about that they will be working on.
3. Hand out "How To Begin" sheet, "Prediction" sheets,

and "Record Results" sheets.

4. Have students make predictions first on their "Prediction" sheet.

5. Discuss predictions as a whole class.

6. Students will begin experimenting in their groups.

7. Teacher walks around and observes children working, but lets them do the discovering.

8. After an allotted amount of time, draw class back together.

9. Have class discussion based on what the reporters have to say about the experiment.

10. Teacher concludes lesson by having students summarize new information they have discovered.

KEY QUESTIONS:

1. What happens if I bring the "N" ends of two magnets together?

2. What happens if I bring the "S" ends of two magnets together?

3. What happens when I bring one "N" end and one "S" end together?

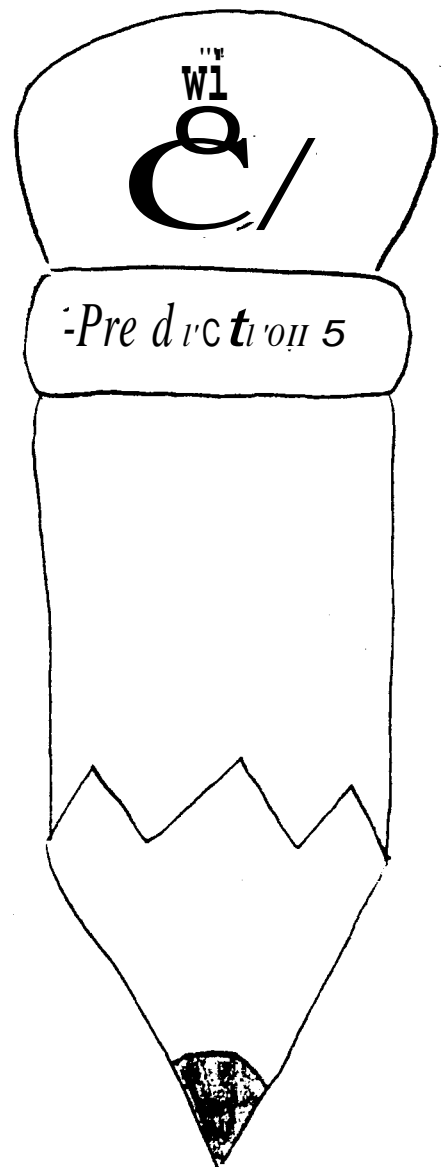
4. If only one of my magnets was labeled, how could I figure out how to label the other magnet?

TEST QUESTIONS:

1. Magnets with like poles together will (attract or repel) Circle one.

2. The "N" pole on a magnet will be attracted to the _____ pole of another magnet.

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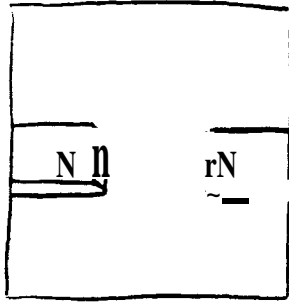
How To Begin

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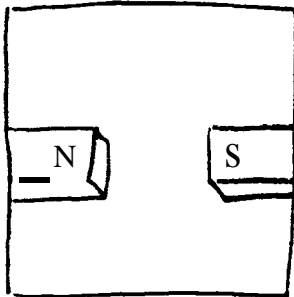
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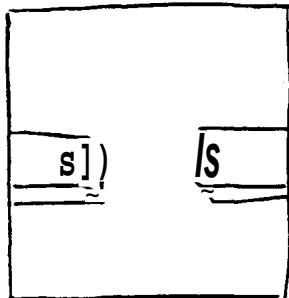
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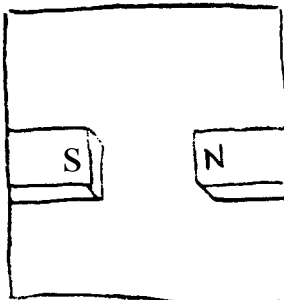
Attract or Repel



Attract or Repel



Attract or Repel



Attract or Repel

Name _____

ACTIVITY # 3

RATIONALE: Students should know that different magnets have different strengths because magnets are used in machines that they might need to operate in the future . Also they should know the properties of magnets because they are in appliances they use everyday.

OBJECTIVES:

1. Students will discover which type of magnet is strongest through experimentation.
2. Students will predict which magnet is the strongest.
3. Students will make observations about the strengths of each magnet.
4. Students will record results of the strengths of the magnets.
5. Students will express their predictions to the class as well as their observations.

MATERIALS:

Two rolled up socks, 8 bar magnets, 8 U-shaped magnets, 8 rod magnets, 8 horseshoe magnets, 8 boxes of paper clips, "How To Begin" and "Keeping Records" sheets

STEPS:

1. Teacher will r~view previous material covered by using the sock game. (Asking a question and throwing a rolled up sock to a student. That student can answer the question or throw it underhand to someone who does know the answer.)
2. Teacher brings up the new topic of the various strengths of magnets by showing the different types of magnets

first.

3. Teacher asks whether or not they think each magnet can pick up the same number of paper clips.

4. Discuss their predictions and write them on the board.

5. Hand out sheets for "How To Begin" and "Record" sheet.

6. Students will begin experimenting in their groups.

7. Teacher walks around and observes groups.

8. Draw class back together after an allotted period of time.

9. Reporters tell class what their group discovered.

10. Compare predictions with discoveries.

11. Conclude lesson by summarizing new information.

KEY QUESTIONS:

1. Do all magnets have the same strength?

2. Which magnet was the strongest?

3. Why do you think some magnets are stronger than others?

4. Why do you think we need magnets with different strengths?

TEST QUESTIONS:

1. Do all magnets have the same strength?

2. What are magnets used for?

How To Begin

1. Go to these URLs; 1- different VV, Q3, eis, -po..per el; ps.
2. Experiment to see how many paperclips each asnet Co. can pick up.
3. Record results on following rQ.3e.

Name _____

~me

Keeping Records

Magnet Number	Shape	How many paper clips does it lift?

ObserVCcilOrl5 :

ACTIVITY :I: 4

RATIONALE: Students should know how to properly store magnets because they will need to know that certain magnetic objects will be stripped of their contents when placed near a magnet.

OBJECTIVES:

1. Students will make a magnet.
2. Students will hypothesize about how to make a magnet.
3. Students will use trial-and-error in trying to make a magnet.
4. Students will illustrate what happened to the object they have magnetized.
5. Students will discuss results as a class.
6. Students will tell about proper storage of magnets.

MATERIALS:

8 nails, 8 magnets, 8 boxes of paper clips, "How To Begin" and "For Your Information" sheets

STEPS:

1. Review previous material by asking students to tell you anything they know about magnets.
2. Point out how much they have learned so far and give positive reinforcement to continue to learn more.
3. Teacher asks if there is any way to make a nail turn into a magnet.
4. If they answer yes, the teacher asks, "How?" If they answer no, the teacher asks, "Why do you think that?"

5. The teacher allows for students to speculate while passing out "How To Begin" sheet, "Illustration" sheet, and "For Your Information" sheet.
6. Students begin experimenting in groups as teacher observes.
7. Call class back together after a certain period of time and discuss the results as a class.
8. Conclude lesson with knowledge of how to store magnets and how to make a magnet.

KEY QUESTIONS:

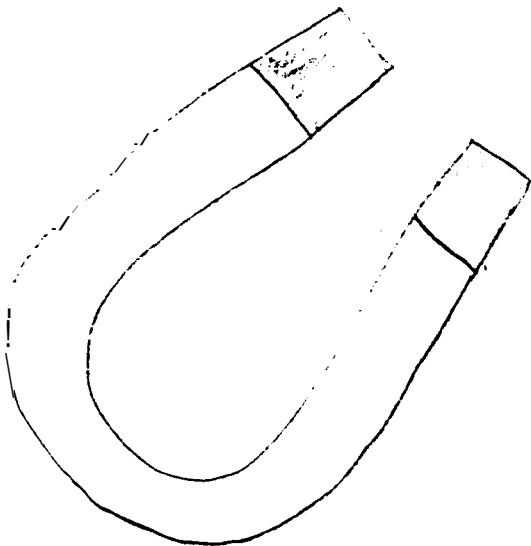
1. Is it possible to turn a nail into a magnet?
2. Is it possible to turn any object into a magnet?
3. What happened when you dropped your magnetized nail on the floor?
4. What is the proper way to store a magnet?
5. What did you learn from this activity?

TEST QUESTIONS:

1. How can you turn a nail into a magnet?
2. What happens when you drop a magnet on the floor several times?
3. Why is it important to know how to store magnets?

How To Begin


1. **Gather** these materials: nail, magnet, paper clip.
2. Use these instructions to make the magnet and paper clip.
3. Keep experimenting and trying different ways until you can pick up the paper clip.
4. **Keep** how you made the magnet.



for your information

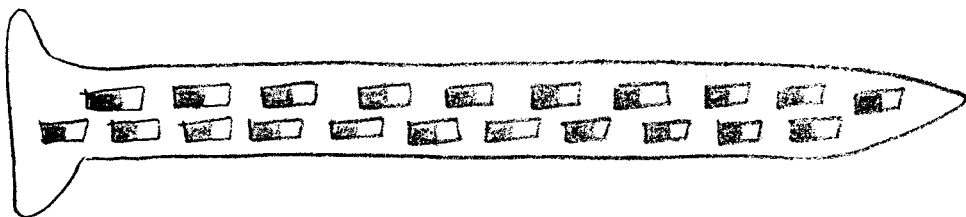
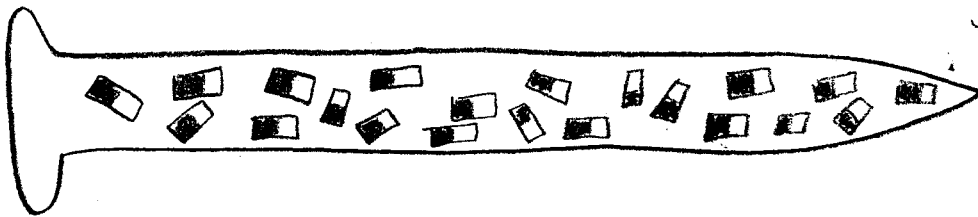
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RATIONALE: Students should develop an understanding about static electricity in order to see the relationship between magnetism and electricity.

OBJECTIVES:

1. Students will develop an understanding of static electricity.
2. Students will make like and unlike charged balloons.
3. Students will observe what happens when you rub a balloon on an object.
4. Students will explain what happens to the electrons on the balloon when it is rubbed against something.
5. Students will compare what balloons with like charges have in common with magnets with like charges.
6. Students will record observations.
7. Students will discuss findings as a class.
8. Students will describe how scientists do not understand all the aspects of static electricity.

MATERIALS:

24 balloons, 8 pieces of string, "How To Begin" and "Observation" sheet, water faucet

STEPS:

1. Teacher introduces concept of static electricity by doing a demonstration of bending water towards a balloon using electrical force.
2. Ask if students know why the balloon makes the water bend toward it.
3. Without commenting on the answers, as to their correct-

ness, record answers on board.

4. Explain the experiment they will be doing.
5. Hand out balloons to each child and "How To Begin" sheet as well as the "Observations" sheet.
6. Let students discover the electrical force between balloons.
7. After a certain period of time, call class back together and discuss observations.
8. Tie the force of magnets with the force of static electricity.
9. Conclude lesson by comparing the two.

KEY QUESTIONS:

1. What causes static electricity?
2. What will my balloons do if I rub them against an object in the same direction?
3. What will my balloons do if I rub them against an object in different directions?
4. Did your balloons stick to everything? .
5. What do you think would happen if you got your balloon wet?

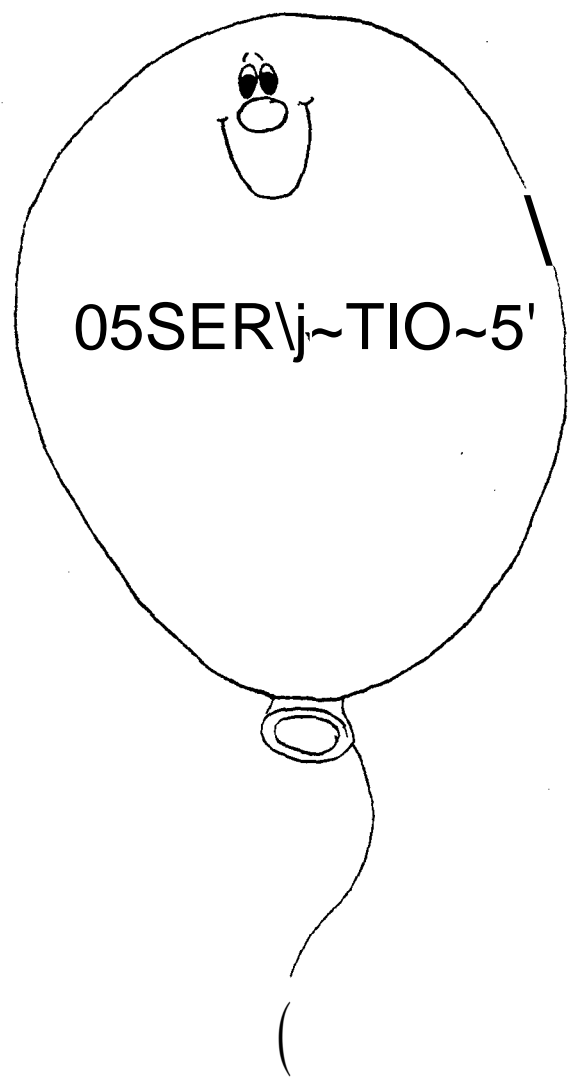
TEST QUESTIONS:

1. If I rub two balloons in the same direction, what will they do? Repel or attract (Circle One).
2. Static electricity is caused by an object which gains or loses _____.
3. What happens if you get the balloons wet?

How To Begin

1. G-a;.-Lher ihese mo..terLoJs: 3' bcdl cons ,
string;
2. -glow Ltp one. b o jJoan.. -gu.h it
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one d;ec-tLDn ..
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and Sec v\Jh(\± hCtppCfl5 ..
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ACTIVITY :I 6

RATIONALE: Students should develop observational skills while experimenting with static electricity.

OBJECTIVES:

1. Students will develop an understanding of static electricity.
2. Students will record observations.
3. Students will explain what happens to the electrons of an object when it has static electricity.

MATERIALS:

"How To Begin" and "Observation" sheets, 32 combs, 8 containers of parsley flakes, tissue, 2 balloons, 1 piece of string, paper

STEPS:

1. Teacher will review material previously covered about static electricity.
2. Teacher will demonstrate how an electrified balloon attracts and repels bits of paper.
3. Discuss why they think this is happening.
4. Tell students that they will get to experiment and find out.
5. Hand out "How To Begin" sheets and "Observation" sheet.
6. Allow students to experiment.
7. Draw class back together after an allotted period of time.
8. Have students share their observations.
9. Discuss what is happening to the electrons in this

activity.

10. Conclude by asking students to look at another demonstration holding two balloons on a string and putting a piece of paper between them.

11. Have students predict what the balloons will do based on the knowledge they already have.

12. Discuss what actually happened and why.

KEY QUESTIONS:

1. What happens to electrons when you rub two balloons together?

2. Why does the paper jump up to the balloon and fall back down?

3. What do you think will happen if I place a piece of paper between the balloons?

TEST QUESTIONS:

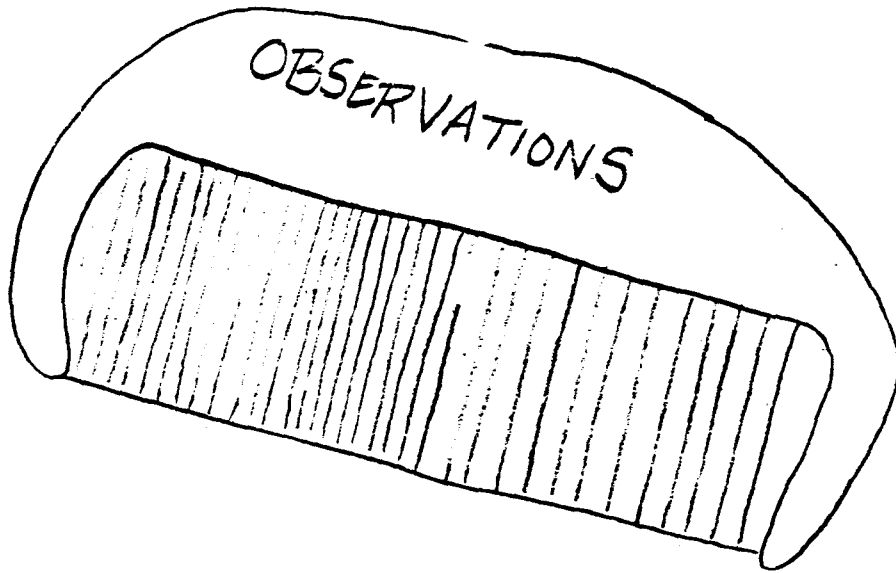
1. If I rub two balloons in the same direction on an object, will they attract or repel each other?

2. What happens to electrons when you rub balloons together.

How To Begin

1. Go...ther these !17Ji~rt~/5: 4 Combs,
jarsl, flakes, i;SSd~.
2. Run the comb through your hair
30 times in same direction.
- 3.. 4/jl' next to forehead
/AJ.I;~" observe what
/1~?;?J-'~k.
4. Run the comb through your
hair 50 more times in
same direction.
5. 11;gl;/ (yl;it; //::>1 :~) Shreded
/1 ;::'i {(/;e--(c;L';~XC what
j-~p-~
6. Try holding the comb over
other things or 1/1: clear rain
and observe lj!7..ci' /~J/j'::/ 1-".

Name _____



ACTIVITY.

RATIONALE: Students should understand the concept of simple electrical circuits in order to better understand the role of electricity in their lives.

OBJECTIVES:

1. Students will explore simple circuits.
2. Students will develop creativity in performing the experiment.
3. Students will hypothesize about which type of connection will turn the light on..
4. Students will illustrate their trial-and-error methods.
5. Students will record results.
6. Students will discuss observations as a class.

MATERIALS:

Tradebook, "How To Begin" and "Illustration" sheets,
8 batteries, 8 pieces of wire, 8 flashlight bulbs

STEPS:

1. Teacher turns off the lights and then turns them back on.,
2. Ask why the light goes on when you flip the switch.
3. Discuss how the light is able to light up when the switch is lifted.
4. Read part of Collins Young Scientist's Book of Power about the transmission of electricity to class.
5. Tell students that they will be able to make their own simple circuit.
6. Hand out "How To Begin" sheets and blank paper for illustrations.

7. Let students begin to experiment.
8. Walk around and observe students.
9. Draw class back together after an allotted period of time.
10. Discuss observations and how they got the light bulb to light up.
11. Conclude by walking around the room and have each student demonstrate how they got their bulb to light up.

KEY QUESTIONS:

1. Why do the lights go on when I flip this switch?
2. Where does the electricity come from to turn on the lights?
3. What do you use electricity for?
4. What would happen if I had a piece of string instead of a piece of wire for this experiment?

TEST QUESTIONS:

1. Electricity comes from many places. List one place that sends electricity to your house.
2. Name two things you use that use electricity.
3. If I had one piece of yarn, one battery, and one bulb, would I be able to create electricity? Why or why not?

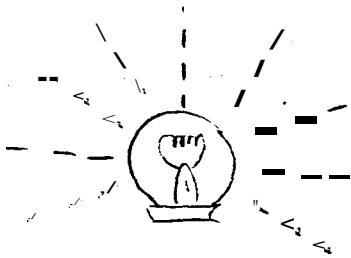
How To Begin

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~5)Yeet

Namt _____



Illustrations
by

RATIONALE: Students should know what conducts electricity and what acts as insulation to prevent harming themselves or others.

OBJECTIVES:

1. Students will create a complete circuit.
2. Students will explain what it means to have an open or closed circuit.
3. Students will observe conductors and 'non-conductors of electricity.
4. Students will record information.
5. Students will draw conclusions based upon experimentation.
6. Students will share observations with the class.

MATERIALS:

"How To Begin" and "ReCording Information" sheets, 16 wires, 8 flashlight bulbs, masking tape, 8 batteries, scissors, 8 of the following: nails, pens, pencils, crayons, rulers, dull plastic needles, erasers, nickels, pieces of paper, pennies, pieces of chalk, paper clips

STEPS:

1. Teacher reviews previous material covered.
2. Teacher shows students a complete circuit and explains the concept of a closed and open circuit.
3. Asks students what would happen if you placed a scissors in the middle of the wires.
4. Write predictions on board.
5. Show what happens by connecting wire to scissors.
6. Explain that they will get a chance to experiment

with objects as well.

7. Hand out "Recording Information" sheet and explain how they will do the experiment.
8. Let students investigate.
9. Call class back together and discuss their observations.
10. Talk about conductors and insulators.
11. Conclude by having students show you conductors and insulators in the classroom.

KEY QUESTIONS:

1. How can you tell if a circuit is open or closed?
2. Give two examples of a conductor.
3. Give two examples of an insulator.

TEST QUESTIONS:

1. Same as key questions.

How To Begin

1. Gather these materials: 2 wires, flashlight, masking tape, battery.
2. Create a complete circuit as demonstrated by the teacher.
3. Cut one wire in half.
4. Try connecting these objects in your complete circuit:
wall, crayon, needle, paper, chalk,
pencil, eraser, pen, paper,
desk, ruler, nickel. (Look
on next page for illustrations)
5. Observe which objects will let the flashlight bulb light.

Name _____

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.Put a v next to the objects
t/vh/c; i //1 up the flashlight bulb.

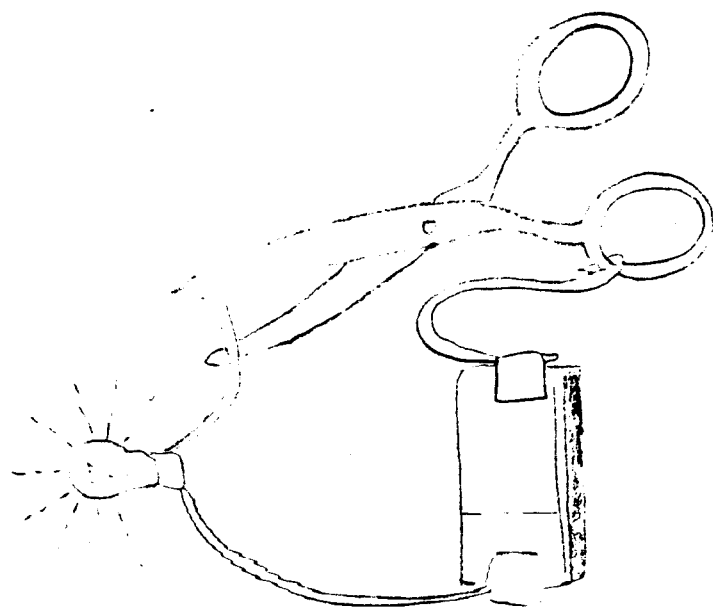
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ACTIVITY # 9

RATIONALE: Students should be able to see that magnetism and electricity are related and that they are integral parts of modern machines and appliances.

OBJECTIVES:

1. Students will discover the relationship between magnetism and electricity.
2. Students will compare the strength of electromagnets.
3. Students will predict how many paper clips each nail will pick up depending on the number of times the wire is wrapped around it.
4. Students will record results.
5. Students will explain what an electromagnet is.
6. Students will share results with class.

MATERIALS:

8 nails, 8 pieces (2 ft.) of thin wire, 8 batteries (C batteries), 8 paper clips, "How To Begin" and "Result" sheets

STEPS:

1. Teacher shows students an electromagnet and asks if anyone knows what it is called.
2. Explain what it is called.
3. Teacher asks 1. 'Students know what an electromagnet can do.
4. Teacher listens to answers and tells students they will be able to try this experiment themselves.
5. Hand out "How To Begin" and "Result" sheets.
6. Let students investigate.

7. Draw class back together and share results.

KEY QUESTIONS:

1. Why do you think this is called an electromagnet?
2. What do you think an electromagnet can do?
3. Can an electromagnet pick up anything? If so, what?
4. What happened when you wrapped the wire around your nail more times?

TEST QUESTIONS:

1. Does an electromagnet have electricity, magnetic attraction, or both?
2. A coiled wire creates a (stronger, weaker) magnetic field. (Circle one)
3. Name two things an electromagnet cannot pick up.

How To Begin

1. Other UV:: {(\::Qe,~t[ILs: IUUL, r'eee 04"
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CLips,

2. Your wire will be stripped of its insulation on both ends already.

3. Wrap the wire around the nail 30 times, leaving most of the extra wire dangling at one end.

4. Touch one end of the wire to the top of the battery.

5. Touch the other end of the wire to the bottom of the battery.

6. Hold the nail close to the paper clips. How many paper clips did the electromagnet pick up?

7. Record results on Results Sheet.

8. Wrap the wire around the nail 50 more times. How many paper clips did it pick up now?

9. Record results on Results Sheet.

Name



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RATIONALE: Students should know how to use electricity safely in order to prevent fires or other accidents while using electricity.

OBJECTIVES:

1. Students will list rules to follow for using electricity safely.
2. Students will predict what would happen if rules are not properly followed.
3. Students will make posters about electrical safety.
4. Students will share experiences they have had with electricity.

MATERIALS:

poster board, markers, crayons, pencils, pictures of electrical hazards

STEPS:

1. Teacher shows pictures of electrical wires tangled together and asks students what they feel about the pictures.
2. Discuss what the owner of those wires could do to make it safer.
3. Ask students what they think would be harmful to them when dealing with electricity.
4. Discuss their ideas and give clues to help them think of more.
5. Have students individually draw a picture of an electrical hazard and a possible solution to that hazard.
6. Discuss illustrations.

7. Have groups of students make posters with safety rules on them.

8. To conclude have groups of students go to other classrooms throughout the school and explain their posters.

KEY QUESTIONS:

1. Is electricity dangerous? Why or why not?

2. Have you ever felt an electric shock when you turned a light on?

3. Have you ever given someone else an electric shock?

How does that happen?

4. What do you think would happen if there were too many wires hooked up to one outlet?

5. What can you do to prevent an electrical hazard?

*Discussion will take the place of test questions for this lesson.

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UNIT INTRODUCTION

of Activities: 12

The activities for this unit on sound follow a sequential pattern. They deal with various aspects of sound and should be followed in order. There are no test questions for this unit since the students will be assessed using a checklist format. One example is shown below.

Name of Student	Reads and understands Science activity sheets	Makes careful observations	Records results carefully & on time	Is able to recognize similarities/differences.	Works well with others	Is able to complete activities	Contributes thoughtful comments	Listens attentively
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								

RATIONALE: Students should be aware of how much they use their ears so they can begin to understand how important the sense of hearing is.

OBJECTIVES:

1. Students will discover how important the sense of hearing is.
2. Students will walk another student around with a blindfold and have them use sense of sound to identify objects.
3. Students will record observations about the sense of hearing.
4. Students will discuss experience of being blindfolded with another student.
5. Students will speculate how important hearing is to someone who is blind.
6. Students will explain how their sense of hearing is important in their own lives.

MATERIALS:

16 blindfolds, 32 earplugs (optional)

STEPS:

1. Teacher reviews the five senses with students and tells them that today they will focus on hearing sounds.
2. Ask how they use sound in their lives.
3. Record responses on chart paper.
4. Teacher explains that they will be experimenting to find out how they need sound and how they use their sense of hearing.
5. Hand out "Getting Started" sheet and "Thoughts and

Observations" sheets.

6. Teacher observes students to see how they are working collaboratively.

7. After a certain period of time, call class back together and discuss thoughts and observations.

8. Ask students key questions here.

9. Conclude by having students speculate how they would feel if they were blind and had to depend on their sense of hearing even more. What changes in their lifestyle would they have to make?

KEY QUESTIONS:

1. How do you use sound in your lives?

2. Do you need your sense of hearing?

3. How did it feel to be blind for that short period of time?

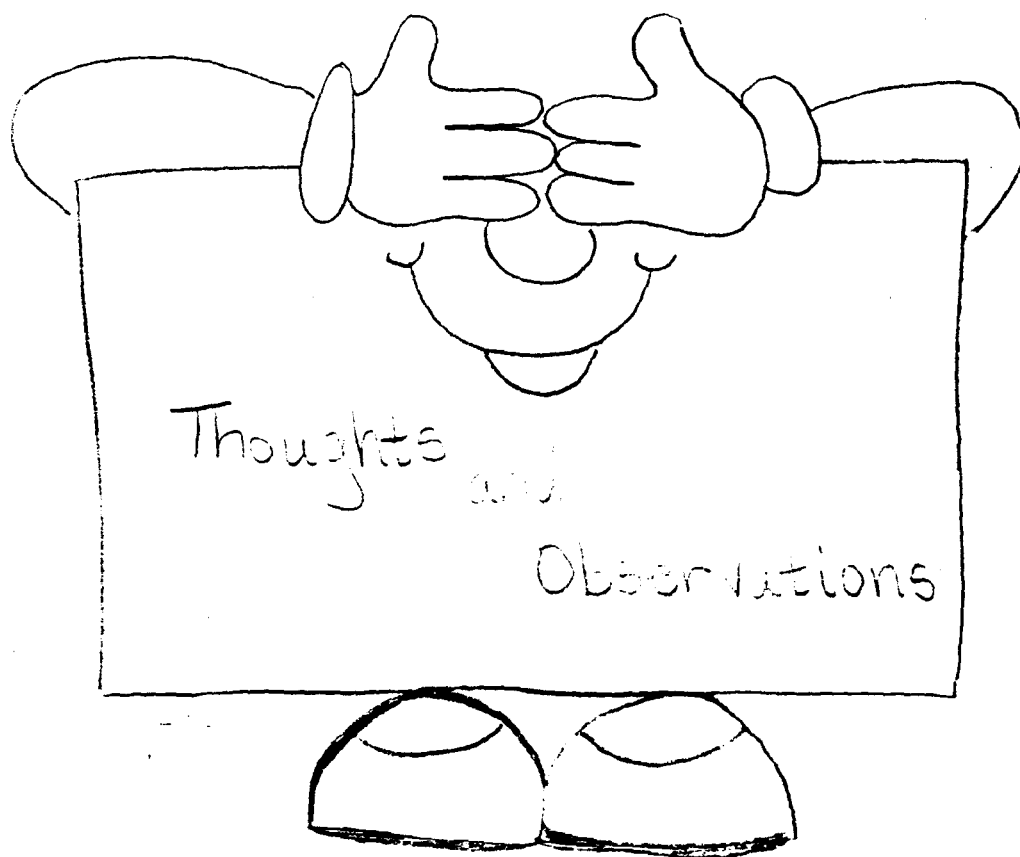
4. What changes would you have to make in your lifestyle if you were blind?

Getting ~ rartc(i

1. **Go±Mer-** {hes~ materials: 2 blindfolds.
2. **-F\cK** SOVVICO rle... ~v\ YOIAIf group
+0 be... 70IJ\j~ 'fCAv+ncr-.
3. One of $\frac{1}{2}$ w; \ put the blindfold on.
4. Your partner will lead you around the room so you can tap different objects and guess what object it is.
5. After tapping several objects and trying to guess what each is, switch places with your partner.
6. Record thoughts and observations on "Thoughts and Observations" sheet.

/0/~Y)c- _____

Name _____



RATIONALE: Students should have the experiences of making a drum in order to better understand how the drum inside their own ear works.

OBJECTIVES:

1. Students will make a drum.
2. Students will predict why sound is made by hitting their drums.
3. Students will experiment with their drums.
4. Students will record predictions.
5. Students will discuss results and observations with class.

MATERIALS:

32 empty tin cans, 32 balloons, 16 scissors, 32 rubber bands, 32 pencils, "Prediction" and "Getting Started" sheets

STEPS:

1. Review previous lesson briefly.
2. Ask students if they are familiar with drums.
3. Ask students to predict how a drum makes sound.
4. Record predictions on board and have students record predictions.
5. Discuss predictions.
6. Tell students they will be able to make their own drums and find out for themselves how a drum works.
7. Hand out the "Getting Started" sheets.
8. Allow students to begin making their drums.
9. Teacher walks around and observes.

10. Call class back together after a certain period of time.
11. Discuss observations and see if they want to change any of their previous predictions.
12. Read p. 16 from Science Fun With Drums, Bells, and Whistles about "The Drums in Your Ears" to students.
13. Teacher will have his/her own drum with the bottom cut out of it also. He/she will place cereal on top of drum and speak into the bottom of the can to demonstrate how our eardrums vibrate like the drums they have made.
14. Collect the drums.
15. Conclude lesson by discussing what they have learned from the activity.

KEY QUESTIONS:

1. Do any of you play the drums?
2. Does anyone know how a drum makes noise?
3. Do you know you have two drums inside of you?
4. What does sound make your drums and eardrums do?

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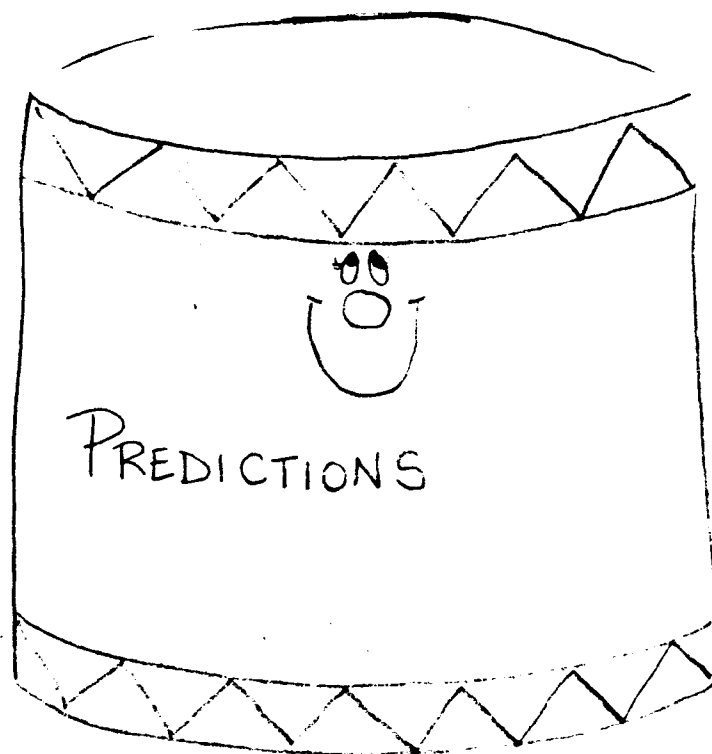
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5. Try playing your drum
your pencil on fingers.

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Volume _____



ACTIVITY # 3

RATIONALE: Students should have the opportunity to compare wooden drums to tin drums in order to develop their skills in making predictions.

OBJECTIVES:

1. Students will create wooden drums.
2. Students will predict how they will sound compared to the tin drums.
3. Students will discover how the tightness of the drumhead changes the tone.
4. Students will compare the wooden drum to the tin drum.
5. Students will record observations.
6. Students will discuss observations with class.

MATERIALS:

32 wooden bowls, plastic from plastic bags, rubber bands, scissors, "Recording Observations" "Getting Started" sheets

STEPS:

1. Brief discussion on previous material covered.
2. Ask students if they can think of anything else that a drum could be made from besides a coffee can.
3. Write responses on overhead transparency.
4. Suggest a wooden bowl if it hasn't come up and ask how students think it would sound compared to the tin coffee can.
5. Return tin drums and give students "Getting Started" and "Recording Observations" sheets.

6. Allow students to begin the activity.
7. Walk around and observe.
8. Draw class back together to discuss observations after an allotted period of time.
9. Conclude by comparing the two different drums on the overhead projector.

KEY QUESTIONS:

1. Can you think of other things you could make a drum out of besides a coffee can?
2. How do you think a wooden drum would sound compared to a tin drum?
3. How are the drums different?
4. How are the drums alike?
5. What happened to the tone when you made the drumhead tighter?
6. Why does a tighter drumhead have a higher tone?

Getting Started

1. Gather these materials: 4 wooden bowls, 4 pieces of plastic, 4 rubber bands, 4 tin drums.

2. *Way can drum.*

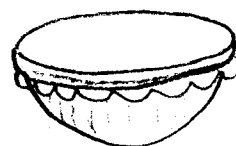
3. *Drumming and dancing.*

4. *Record observations on Feeding*

None _____

Recording

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RATIONALE: Students should understand how sound is made and how sound is carried because there are so many objects in their immediate environment which produce sound.

OBJECTIVES:

1. Students will explain how sound is made.
2. Students will see sound waves in water using a tuning fork.
3. Students will attempt to make loud and soft sounds on their drums from the previous lessons.
4. Students will record observations and discoveries.
5. Students will discuss results with class.

MATERIALS:

Drums previously made, 32 tuning forks, 32 cups, water, "Observation & Discoveries" sheet, "Getting Started" sheet, Ears by Douglas Mathers

STEPS:

1. Discuss material covered so far about the sense of hearing and how drums are related to eardrums.
2. Teacher will read p. 6-9 from Ears by Douglas Mathers to students stopping to explain and ask questions about it when necessary.
3. Discuss material on those pages and distribute drums from previous lesson.
4. Allow students to experiment further with their drums and with sound waves in water.
5. Draw class back together and discuss observations.

6. Collect lesson by demonstrating how three glasses with different amounts of water in each produces different frequencies.

EEY QUESTIONS:

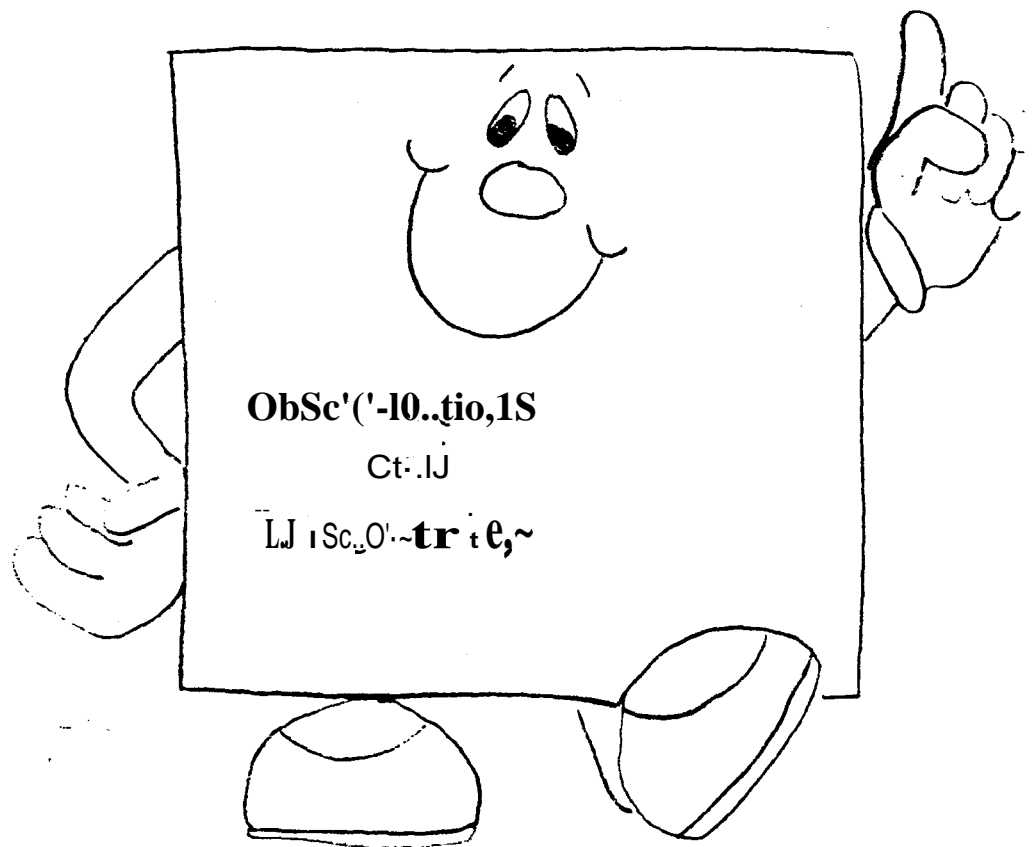
1. What are some of the quietest sounds you hear?
2. What are some of the loudest sounds you can hear?
3. Are some sounds so familiar to us that we don't hear them anymore? If yes, which ones?
4. How is sound made?
5. How is sound carried to our ears?
6. What happened to the water in your cups when you put the tuning fork in it? Why did that happen?
7. What makes the sound become a wave?
8. How did you make loud and soft sounds on your drum?

Getting Started

- Go±h~r-- -these materials: 4 tuning forks, 4 cups of water, tin-can
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- Record observations and discoveries
on "Observations and Discoveries"
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- Try to make loud and soft
sounds.

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RATIONALE: Students should relate the drums to the eardrums in their ears in order to better understand their valuable sense of hearing.

OBJECTIVES:

1. Students will relate drums and sound waves with the eardrums in their own ears.
2. Students will identify different ways that sound is carried to their ears.
3. Students will record observations.
4. Students will illustrate their ear and eardrum.
5. Students will discuss how an ear works.

MATERIALS:

tin-can drum, Science Fun with Drums, Bells, and Whistles
by Rose Wyler

STEPS:

1. Teacher will read p. 16 "The Drums In Your Ears" from Science Fun with Drums, Bells, and Whistles.
2. Discuss material on that page as well as anything that the children bring up.
3. Demonstrate how a tin-can drum can act like our eardrums.
4. Pass the tin-can drum around the room for students to try while they are writing down or illustrating their observations.
5. Show visuals of the parts of the ear and discuss the different functions of each part.
6. Conclude by having students draw their ear and eardrum.

KEY QUESTIONS:

1. Do you know you have two drums inside your body?

Do you know where there are?

RATIONALE: It is important for students to get hands-on experience making a bell so that they will understand how different sounds are made by striking different objects.

OBJECTIVES:

1. Students will make a bell.
2. Students will compare drums to bells.
3. Students will predict what will happen if they shorten their clapper string.
4. Students will record observations.
5. Students will discuss results as a class.

MATERIALS:

32 tin-can drums (done already), 32 metal nuts, string, "Getting Started" and "Observation" sheets

STEPS:

1. Teacher asks "Why does a bell ring?"
2. Record responses on board.
3. Explain to students that they will get to make their own bells.
4. Pass out "Getting Started" and "Observation" sheets and allow students to begin experimenting.
5. After an allotted period of time, draw class back together and discuss observations.
6. Compare drums and bells.
7. Conclude by having students write down what they have learned in this lesson and what could we have have done differently?

KEY QUESTIONS:

1. Listen to the sound of this drum. Now listen to the sound of these bells. Can you hear a difference?
2. Why does a bell ring?
3. What happens when you shorten the clapper string?
4. What happens when you squeeze the can together?
5. Can you think of anything else which might change the sound of the bell?

Started

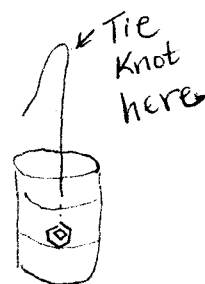
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5. Tie a knot at the other end of the string. Shake the can and what have you made?



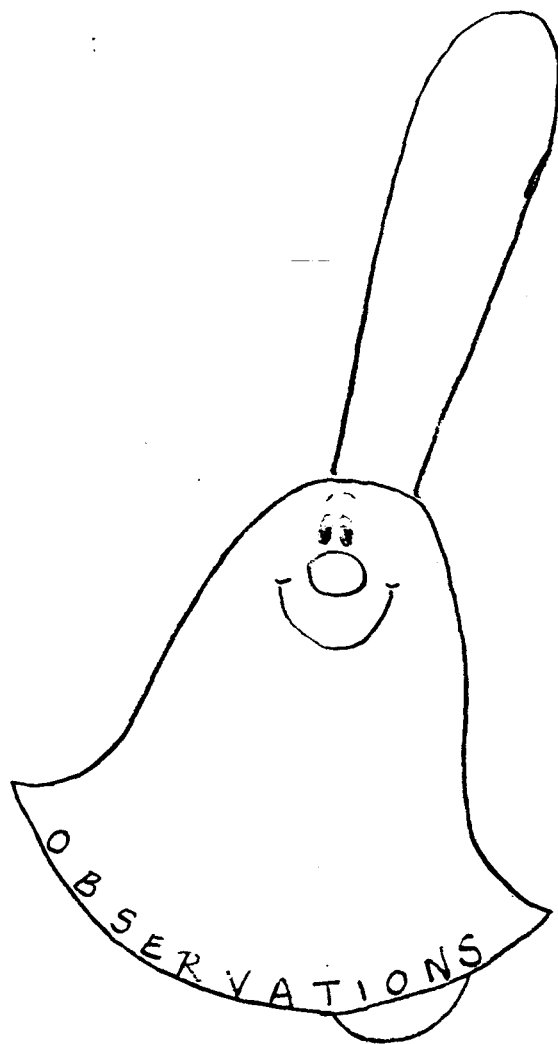
6. Shorten the string and tie it again. What happens to the sound?

7. Keep trying to change the sounds of the bell.

8. Record observations or "Observations" sheet.

Name _____

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RATIONALE: It is important for students to compare two things and see similarities and differences in order to understand how two sounds relate to each other. Also lessons of this nature allow for students to see that there is a pattern in science and that different lessons are related.

OBJECTIVES:

1. Students will make a bell with a clay flower pot.
2. Students will predict how the clay bell will sound.
3. Students will identify where the clearest sound comes from in a bell.
4. Students will record observations.
5. Students will compare the tin bell with the clay flower pot bell.
6. Students will discuss results with class.

MATERIALS:

"Getting Started" and "Observation" sheets, 32 clay flower pots, 32 metal nuts, string

STEPS:

1. Review material covered previously in unit.
2. Ask students if they can think of anything besides a tin can that they can make a bell with.
3. Discuss possibilities.
4. Explain that they will be able to make a bell out of a clay flower pot.
5. Have students predict how this bell will sound compared to the tin bell.

6. Record predictions on board.
7. Allow students to start making their bells and experiment.
8. Draw class back together after a certain period of time and discuss observations.
9. Conclude with discussing what uses these bells could have in their lives.

KEY QUESTIONS:

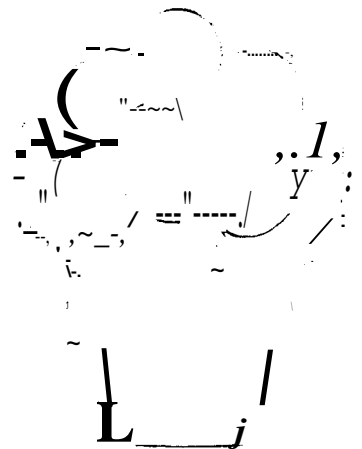
1. Can you think of anything besides a tin can that you can make a bell with?
2. How is this bell the same as the tin bell?
3. How is this bell different than the tin bell?
4. What can you use these bells for?
5. Can you think of a way to make this bell sound loud and soft?
6. Where does the clearest sound come from?
7. What will you use your bell for?

GETTING STARTED

1. Find the following materials: 4 clay flower pots, 4 potting mixes, 4 pieces of string, 4 small rocks, 4 small glass flowers.
2. Make a ball of clay and place it in the pot. The string will be used to make a ball of clay.
3. Experiment with different colors to find the best color for the flowers, and use the string to make them.
4. From the above information, you can see that the string is used to make the flowers.

Observations

~~e



RATIONALE: It is important for students to know that science does not just deal with science, but it can also relate to other subjects such as music. Students should understand how different tones are made so they can appreciate music and all its intricacies.

OBJECTIVES:

1. Students will discover how different sized nails make different tones.
2. Students will define pitch and how it relates to sound waves.
3. Students will predict which nails have the lowest and highest tones.
4. Students will play "Mary Had a Little Lamb" on their nails.
5. Students will record observations.
6. Students will discuss observations.

MATERIALS:

"Getting Started" and "Observation" sheets, 32 boards with nails of eight different sizes already pounded into them

STEPS:

1. Teacher shows students a board with eight nails in it. Ask students, "If I hit all of these nails separately, will they all have the same sound? Why or why not?"
2. Discuss responses.
3. Hand out "Getting Started" and "Observation" sheets.
4. Let students begin experimenting.

5. Call students back together after a certain period of time.

6. Discuss results.

7. Conclude lesson by discussing sound, sound waves, tone, and pitch.

KEY QUESTIONS:

1. Do big nails sound different than small ones?

2. Why are there so many different tones?

3. Who do you think would need to know about tones and how they work?

4. Why does a big nail vibrate at a slower rate?

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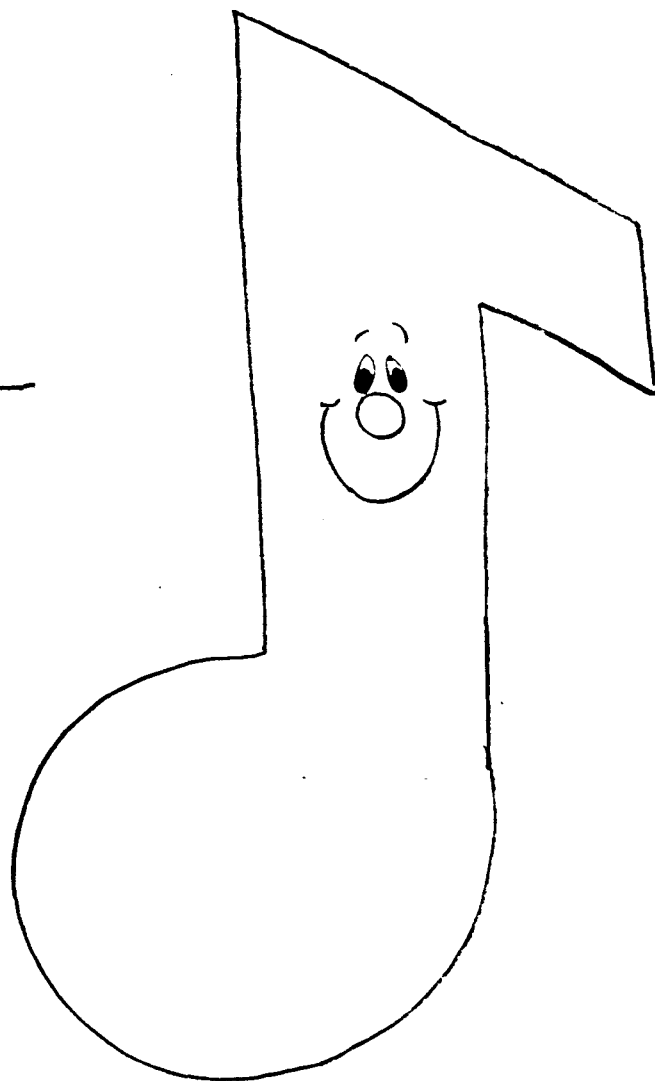
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OBSERVATIONS  
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(your name)





**RATIONALE:** It is important for students to see how principles of sound and music are related. They can develop their skills in drawing conclusions also.

**OBJECTIVES:**

1. Students will describe principles of sound.
2. Students will make tube flutes.
3. Students will predict how water will affect their tube flutes.
4. Students will graph their results.
5. Students will share results with the class.

**MATERIALS:**

tubing (~ or 5/8 inch), 32 corks, modeling clay, 32 eyedroppers, water, food coloring, "Getting Started" and "Graphing" sheets, 4 cups

**STEPS:**

1. Teacher will bring in a flute to demonstrate how flutes make sound.
2. Explain the history of the flute and how the flute makes sound.
3. Tell students that they will be making a tube flute with water. Ask students how they think this will sound compared to the real flute.
4. Write responses on board and review graphing.
5. Pass out "Getting Started" and "Graphing" sheets.
6. Allow students to begin experimenting.
7. Draw class back together.
8. Students will share results and graphs with class.

9. Conclude by having students describe the principles of sound used so far in this unit.

**KEY QUESTIONS:**

1. Long ago, scientists dug up a bone that had six holes on one side of it. Can you think of what that could have been?

2. How do flutes make sound?

3. What is the purpose of having holes in a flute?

4. How can you make the tone of a flute higher and lower?

5. Is there a difference between the sounds a flute makes and the sounds a tube flute makes?

6. Which flute sounds better?

7. How is sound made in a flute?

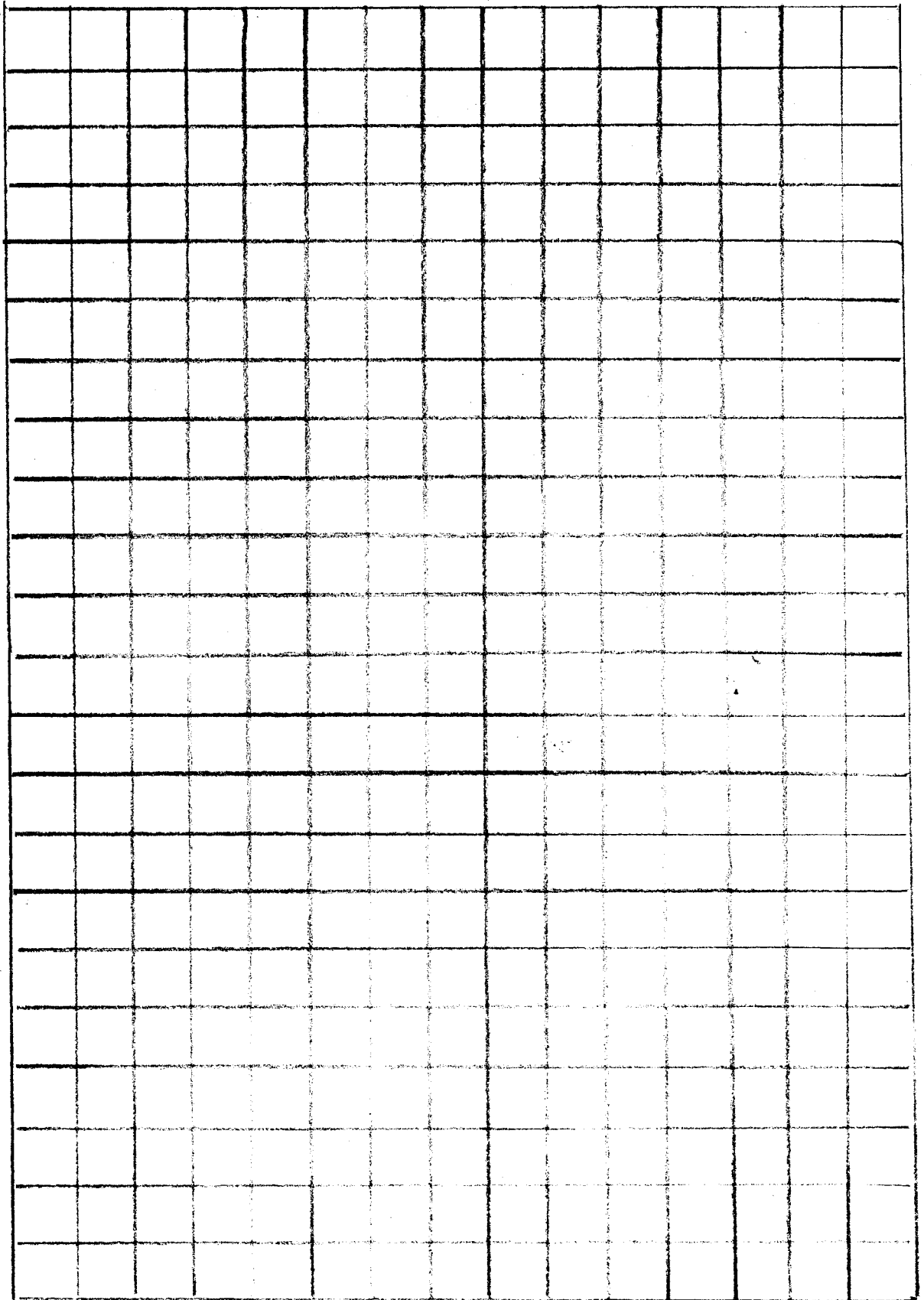
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6. Keep adding water to see how  
 the sound changes.
7. Record data on graph paper.
8. Experiment some more to see  
 what you can discover!

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Pitch



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Number of water drops added

**RATIONALE:** Students should experiment with the physics of sound in order to develop a better understanding of sound and the role it plays in our society.

**OBJECTIVES:**

1. Students will arrange bottles in order of lowest pitch to highest pitch.
2. Students will compare sounds created in large bottles to sounds created in small bottles.
3. Students will add water to bottles and arrange according to pitch once again.
4. Students will observe how water affects pitch.
5. Students will record results.
6. Students will share observations with class.

**MATERIALS:**

54 bottles of various sizes, water, "Getting Started" and "Observation" sheets

**STEPS:**

1. Teacher shows students a group of bottles of various sizes.
2. Ask students to think of different ways the bottles could make sounds.
3. Write response on chart paper.
4. Blow air into one of the bottles and then add water and blow into it again.
5. Ask students to compare the two sounds.
6. Explain that they will be experimenting with sound and water.

7. Hand out "Getting Started" and "Observation" sheets.
8. Allow students to begin experimenting.
9. Gather students back together after a certain period of time and discuss thoughts and observations.
10. Conclude lesson by having students write what they have learned in this lesson that they didn't know before.

**KEY QUESTIONS:**

1. What are some different ways you can make sound from a bottle?
2. What happens when you add water to the bottle?
3. If I drew a picture of three different sized bottles, could you tell me which had the lowest pitch and which had the highest pitch? Why or why not?
4. Why do sounds created in small containers have high frequencies and high tones?

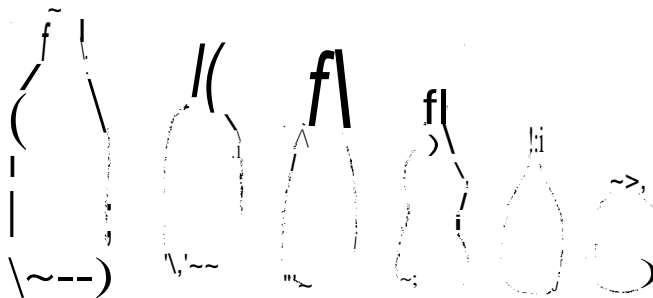
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-[SIO\| ;n-to one o;\d II'StC) -fC  
the sound.
3. Arrange bottles from those will;  
highest pitch to those <sup>low</sup> lowest  
lowest pitch.
4. ~rJ! fwo ;ollcs' 1/2 1/2 same pitch  
ptcl- a 1/11/1/1 1/1/21' in one.
5. Add water to all of the bottles  
and see if they are ~JII II in  
order of highest pitch fD  
lowest pitch.
6. Arrange them if they are ~JII II  
in order.
7. ~JII II observation in "Conventions"  
sheet.

Name \_\_\_\_\_

OBSERVATIONS

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**RATIONALE:** It is important for students to make a tin can telephone so they can use their knowledge of sound to discover how a telephone works.

**OBJECTIVES:**

1. Students will make a tin can telephone.
2. Students will predict how sound travels over the telephone.
3. Students will record observations.
4. Students will modify the experiment at the end and create a new experiment.
5. Students will draw conclusions as to who's telephone is more effective.
6. Students will share observations with class.
7. Students will describe how sound travels.

**MATERIALS:**

64 tin cans, fish line (10 pound test or higher), paper clips, hammer, nail, "Getting Started" and "Observations" sheets

**STEPS:**

1. Teacher brings in a telephone and asks, "How do you think sound travels over this telephone?"
2. Discuss investigations of sound done so far.
3. Explain to students that they will get to make their own telephones.
4. Pass out "Getting Started" and "Observation" sheets and let students begin experimenting.

5. Draw class back together and discuss observations and questions.
6. Talk about other ideas they can think of to modify this experiment.
7. Conclude by trying a few of their suggestions for modifying the experiment and discussing the results.

**KEY QUESTIONS:**

1. How does sound travel over a telephone?
2. What do the tin cans do to the sound?
3. How does the person on other end of your telephone receive the sound?
4. What do you think would happen if you tied a piece of ribbon on the fish line? Try it and find out!
5. How can our ears hear what is being said by the person on the other end of the telephone.

# Getting Started

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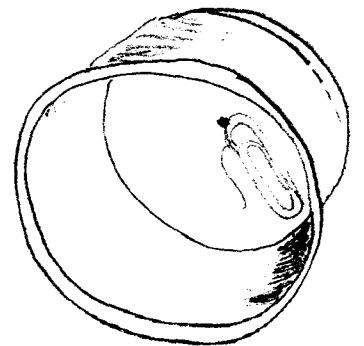
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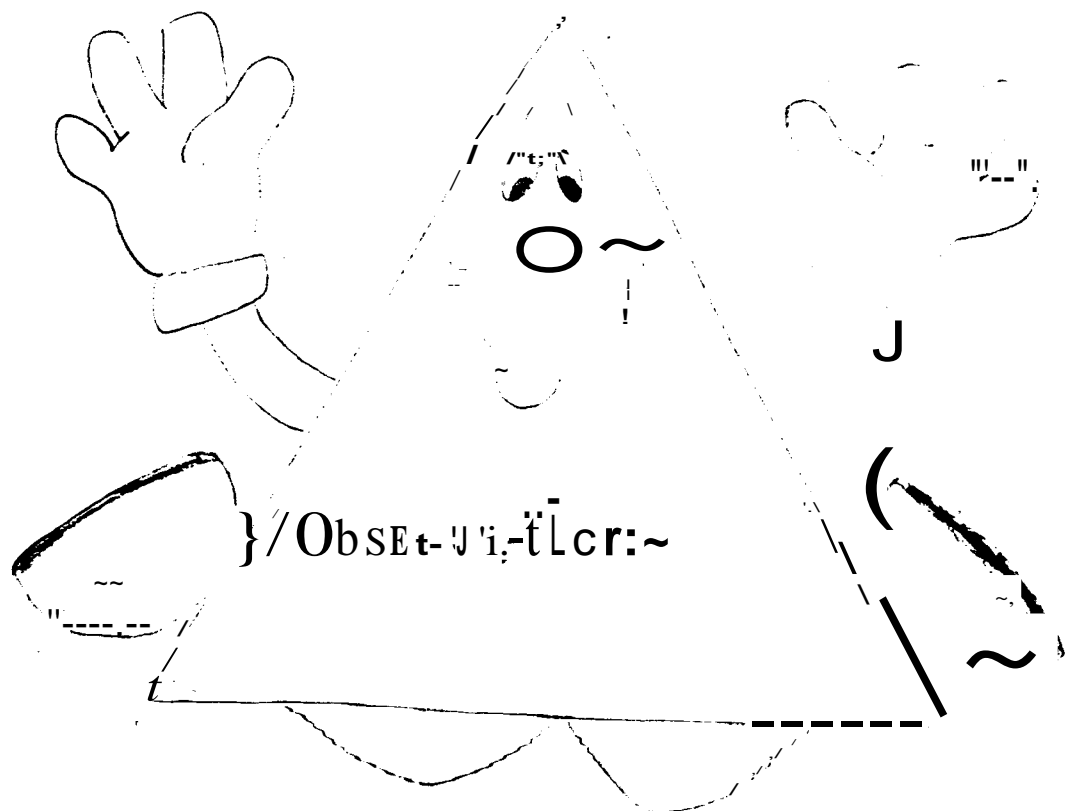
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## ACTIVITY # 12

**RATIONALE:** It is important for students to recognize patterns in science by doing experiments that reinforce what they have learned in previous lessons. Students should be able to recognize these patterns in dealing with sound.

**OBJECTIVES:**

1. Students will make megaphones.
2. Students will compare megaphones made with different materials.
3. Students will explain how a megaphone works.
4. Students will record observations.
5. Students will discuss results with class.

**MATERIALS:**

construction paper, large plastic cups, tag board, cardboard, soft paper cloth, "Getting Started" and "Observation" sheets

**STEPS:**

1. Review principles of sound.
2. Teacher uses a megaphone to attract class' attention.
3. Ask students how they think a megaphone works.
4. Discuss how a megaphone works.
5. Explain that they will get a chance to make megaphones and compare different megaphones.
6. Hand out "Getting Started" and "Observation" sheets and allow students to begin experimenting.
7. Gather class back together and discuss results.

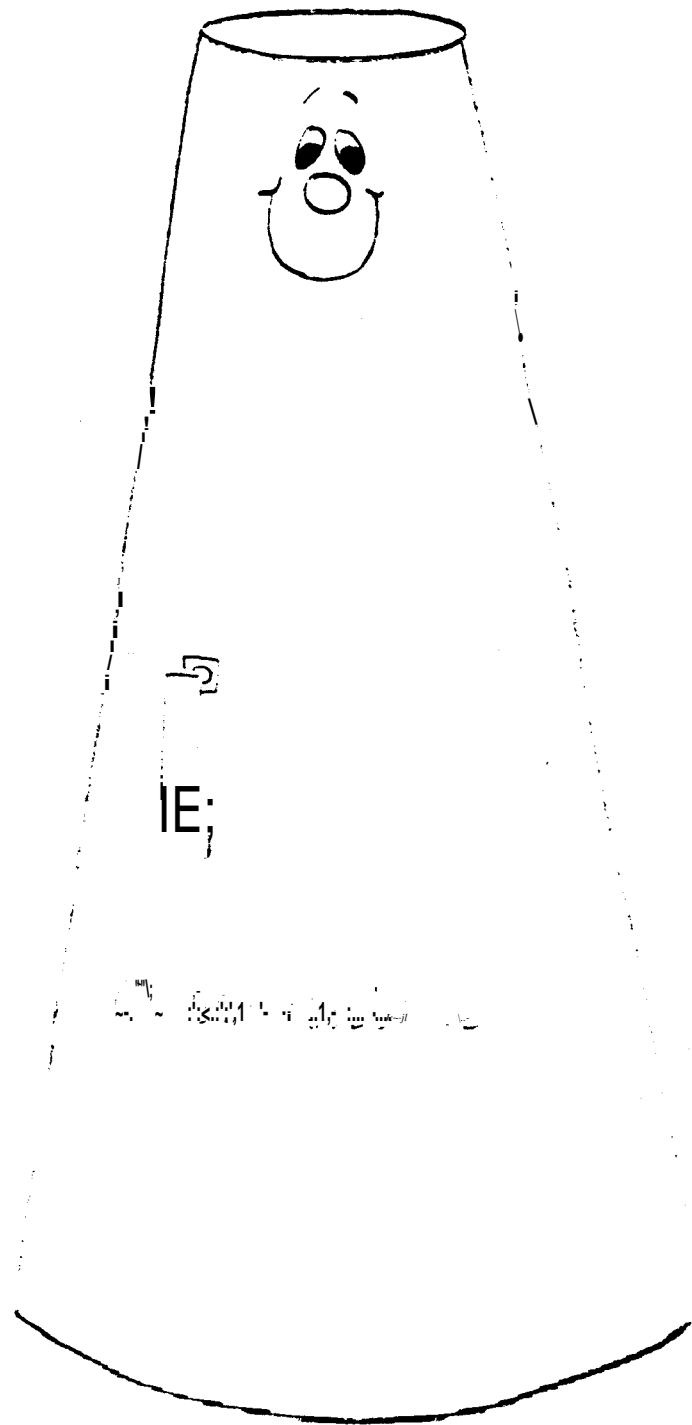
8. Conclude by going outside and testing how far they can go and still hear each other.

**KEY QUESTIONS:**

1. How do you think a megaphone works?
2. How does a megaphone work?
3. What pushes together and carries sound out from the megaphone?
4. How can our ears hear the sound that comes out of a megaphone?
5. What would happen if you turned the megaphone around and talked through the bigger end?



Name \_\_\_\_\_





## Sound Unit Bibliography

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## UNIT INTRODUCTION

# of Activities: 13

This unit will be incorporated throughout the entire curriculum. The scope and sequence which accompanies the unit reflects this incorporation, but the following lesson plans reflect only the science portion of the unit. This unit deals with the human body in general and touches upon many aspects of the human body which are important for students to know and understand.

## THE BUMAH BODY

**RATIONALE:** It is important for students to understand concepts about the human body so that they will be well-informed and lead healthy lives.

**OBJECTIVES:**

1. Students will illustrate different types of cells.
2. Students will "describe what different kinds of cells do for the human body.
3. Students will observe their own cells under a microscope.
4. Students will draw what the cells inside their mouth looked like under the microscope.
5. Students will share illustrations with class.
6. Students will practice communication skills by writing what they liked and didn't like about the activity.

**MATERIALS:**

32 Q-tips, 32 slides, 32 slide covers, 8 microscopes, white drawing paper, iodine, 8 eyedroppers-, "Response Log" sheets, "Steps to Follow" sheets, The Magic School Bus

**STEPS:**

1. Teacher reads first four pages of The Magic School Bus: Inside the Human Body by Joanna Cole.
2. Discuss material covered on those pages.
3. Hand out "Steps to Follow" sheet and let students begin experimenting.
4. Walk around and observe students.
5. Draw students back together and discuss observations.
6. Students will share illustrations of cells and explain

what different cells do.

7. Conclude by showing slides of different cells.

**KEY QUESTIONS:**

1. What are our bodies made of?
2. Do cells do the same job in every part of the body?
3. What are some different kinds of cells and can you name different jobs that each one has?
4. What are the building blocks from which everything else is made in our body?
5. Can we see the cells in our body? If yes, how?

**TEST QUESTIONS:**

1. What are the building blocks of the human body?
2. All cells are the same shape and size in the human body. True or False (Circle one).
3. Name two different types of cells and list what each does for you.

# Slt.:J'5 to JOI LOW

1. Gather these materials: 1 microscope, 4 slides, 4 slide covers, 4 Q-tips, 1 eyedropper, Iodine, 4 sheets of white drawing paper.
2. Gently scrape inside of cheek with Q-tip.
3. S-I-J'r t>10/ of Q-tip in a drop (v j'v(iff r 11 your slide.
4. Add a drop of Iodine to your slide.
5. Look at slide under microscope. What do you see?
6. Draw what you see on white drawing paper.
7. Write what you see, I, E; and what you did, like {/LCi{-/ activity on your paper.

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**RATIONALE:** Students should be aware of their tastebuds and their tongues so that they can better understand the complexities of the human body.

**OBJECTIVES:**

- 1. Students will draw and label their tongue and its areas of different tastebuds.
2. Students will taste different foods that are bitter, sour, salty, and sweet in order to be able to locate these on an illustration of their tongue.
3. Students will record observations.
4. Students will communicate observations with class.

**MATERIALS:**

The Magic School Bus: Inside the Human Body by Joanna Cole, 32 pretzels, lemons, coffee grounds, candy, "Steps to Follow" and "Observations" sheets,

**STEPS:**

1. REview previous material covered.
2. Teacher reads first five pages of The Magic School Bus: Inside the Human Body.
3. Discuss material in book and ask some key questions.
4. Hand out "Steps to Follow" and "Observations" sheets and allow students to begin experimenting.
5. Observe students in their groups.
6. Draw class back together and discuss observations.
7. Conclude by having students share their illustrations and tell one thing they enjoyed about this activity.

**KEY QUESTIONS:**

1. How does your tongue taste so many different foods?

**.BAGHER NOTE:**

Remember to prepare for the next activity by placing  
egg shells in vinegar.



# Steps to JOLL OW

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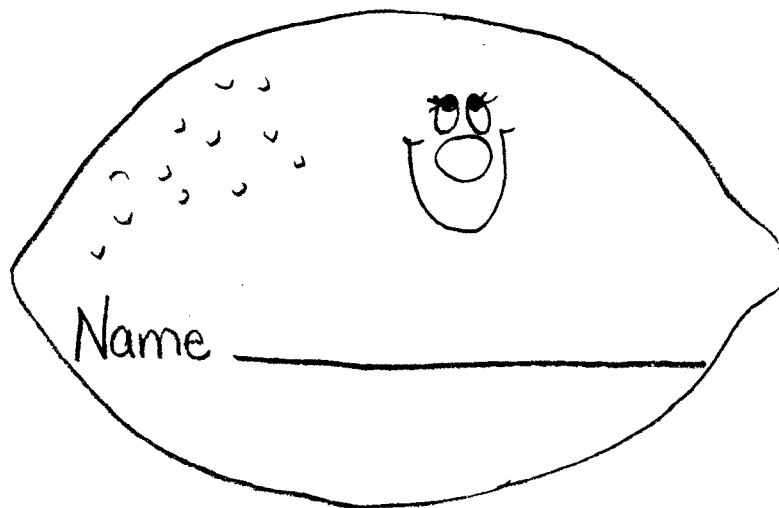
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# OBSERVATIONS



### ACTIVITY :t 3

**RATIONALE;** Students should know what types of food are good for them to lead healthy lives. Also, they should be aware of how their food is digested in order to gain a better understanding of their bodies.

**OBJECTIVES:**

1. Students will identify foods their bodies need.
2. Students will define digestion.
3. Students will explain parts of the digestive system.
4. Students will observe an example of the digestive process.
5. Students will record observations.
6. Students will share observations with class.

**MATERIALS:**

32 soda crackers, The Human Body & How It Works by Angela Royston, "Steps to Follow" and "Observations" sheets

**STEPS:**

1. Review material from previous lessons.
2. Teacher continues to read next six pages from The Magic School Bus: Inside the Human Body.
3. Discuss material in book.
4. Hand out "Steps to Follow" and "Observation" sheets and allow students to begin experimenting.
5. Observe students working in their groups.
6. Draw back together after a certain period of time.
7. Students can share results with whole class.
8. Read.p. 20 "Why do we chew food?" from The Human Body & How It Works.
9. Hold small class discussion on this.

10. Conclude by having students each tell something they have learned in this activity.

**KEY QUESTIONS:**

1. What does your body do to your food so that your cells can make energy?
2. What kinds of "food" should we eat?
3. What does "digestion" mean?
4. How does food get from the esophagus to the stomach?
5. Why does your stomach growl?
6. What does the small intestine do?

**TEST QUESTIONS:**

1. Why do we chew food?
2. What kinds of food should we eat?
3. Draw how food is digested in the stomach.
4. What helps food get from the esophagus to the stomach?

# Steps to t10 how

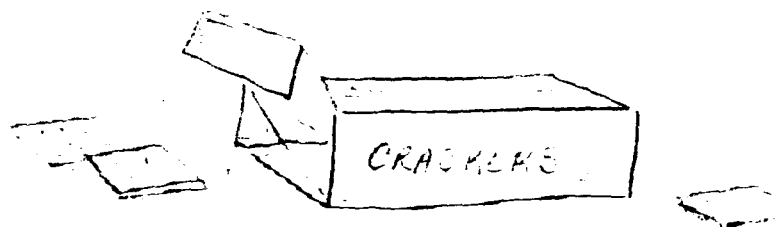
1. Gather these materials:  
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and vinegar in them,  
4 soda crackers.
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## ACTIVITY 1= "

**RATIONALE:** It is important for students to understand what blood cells are and how they work in order to understand how their body functions to fight diseases. Also, the heart is what keeps us alive and this is important for them to know.

**OBJECTIVES:**

1. Students will summarize how a heart works.
2. Students will describe what blood vessels do.
3. Students will explain what blood is for.
4. Students will draw white blood cells fighting off disease germs.
5. Students will make stethoscopes to listen to other student's heartbeats.
6. Students will record thoughts and observations.
7. Students will share thoughts and observations with class.

**MATERIALS:**

The Magic School Bus: Inside the Human Body "Steps to Follow" and "Observations" sheets, white drawing paper, The Human Body & How It Works, 32 pieces of plastic tubing, 32 pieces of cut off tops of detergent bottles (small)

**STEPS:**

1. Review previous material covered briefly.
2. Read the next nine pages in The Magic School Bus: Inside the Human Body.
3. Hold discussion throughout the reading.

4. Pass out "Steps to Follow" and "Thoughts and Observations" sheets and allow students to begin experimenting.
5. Observe students.
6. Call class back together and share thoughts and observations together.
7. Read p. 18-19 from The Human Body & How It Works to reinforce concepts learned in lesson.
8. Conclude by having students share their illustrations and explain what is going on in their illustration.

**KEY QUESTIONS:**

1. What do blood vessels do?
2. What did you hear when you listened to a friend's heartbeat?
3. What is blood for?
4. Who can summarize what the heart does for us?
5. What do white blood cells do for us?

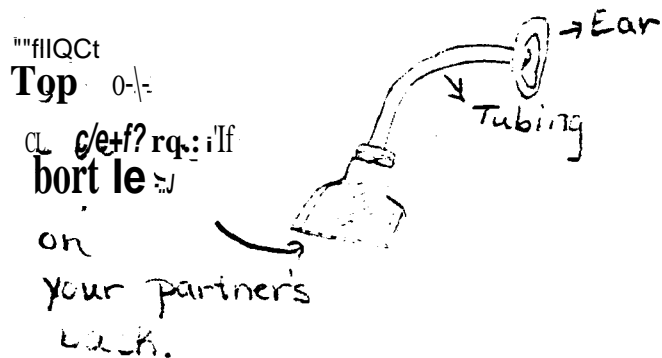
**TEST QUESTIONS:**

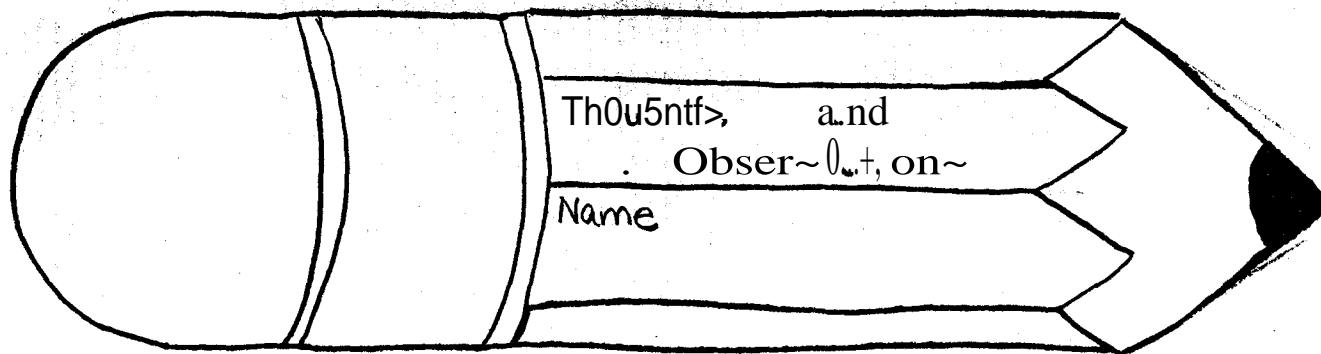
1. Tubes that carry blood are called \_\_\_\_\_.
2. Why is blood red?
3. How do white blood cells help us? Draw your answer.
4. Your heart pumps blood into the \_\_\_\_\_ to get fresh oxygen.



# Stl)l5 to Follow

1. Gather these materials: 4 sheets of white drawing paper, plastic tubing, top of a small laundry detergent bottle.
2. Draw a picture of a white blood cell fighting off disease germs on white drawing paper.
3. Make a stethoscope by putting the plastic tubing into the top of the detergent bottle and listen to your friend's heartbeat by placing it on his or her back.
4. Write thoughts and observations down.





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Name



**RATIONALE:** Students should understand the intricacies of the brain because it is a part of their bodies which is always working. Without it they would not be able to think or do anything.

**OBJECTIVES:**

1. Students will describe what the brain controls.
2. Students will state that the brain is always working.
3. Students will discuss how the spinal cord connects the brain with the nerves.
4. Students will draw pictures of any concepts covered so far so that they can discuss what parts of the brain they had to use to do so.

**MATERIALS:**

The Magic School Bus: Inside the Human Body, white drawing paper

**STEPS:**

1. Review previous material using sock game.
2. Read next five pages from The Magic School Bus: Inside the Human Body.
3. Hold class discussion on material covered on those pages.
4. Allow students to draw pictures of any concept covered so far in the unit.
5. Conclude by discussing what parts of the brain they had to use to draw that picture.

**KEY QUESTIONS:**

1. Your brain stops working when you go to sleep.

True or False?,

2. What does the brain control?

**TEST QUESTIONS:**

Same as key questions.



**RATIONALE:** Students should learn about their eyes, nose, and ears so that they know how each works to protect their bodies.

**OBJECTIVES:**

1. Students will discover that their eyes blink to protect their eyes.
2. Students will relate the sense of smell to the sense of taste.
3. Students will test their balance.
4. Students will taste something while holding their nose.
5. Students will record results.

**MATERIALS:**

32 pieces of peppermint gum without wrappers, "Steps to Follow" and "Results" sheets

**STEPS:**

1. Teacher reads the rest of The Magic School Bus: Inside the Human Body
2. Discussion follows.
3. Explain that they will have a chance to experiment with their eyes, nose, and mouth.
4. Pass out "Steps to Follow" and "Results" sheets.
5. Let students begin experimenting.
6. Draw class back together and share results.
7. Conclude by reading p. 26-27 from The Human Body & How It Works.
8. Brief discussion.

**KEY QUESTIONS:**

1. Why do you blink?
2. How often do you blink?
3. Can you taste anything when you are sick?
4. What would happen if you closed your eyes and lifted up one leg?
5. Why do you get dizzy when you spin around?

**TEST QUESTIONS:**

1. Why do you blink?
2. Can you taste anything when you are sick?



# 8th J's to Follow

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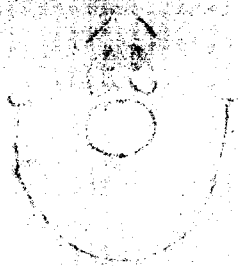
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Whattf do /?" Observe?

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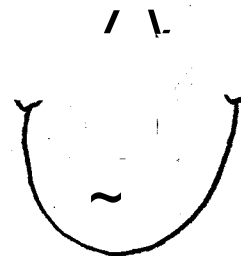
7. Now stand on one leg and close  
your eyes. How long can you  
balance now?

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Name \_\_\_\_\_



RESULT~

RATIONALE: It is important for students to examine skin and fingerprints so that they know how to heal cuts and bruises and that they are all unique individuals even if they are identical twins.

OBJECTIVES:

1. Students will describe what skin is for.
2. Students will distinguish differences between various fingerprints.
3. Students will discover who was the thief using deductive reasoning.
4. Students will make fingerprints on data collection sheets.
5. Students will choose an alias to call themselves.
6. Students will observe that everyone has their own unique set of fingerprints.
7. Students will compare fingerprints.
8. Students will choose an alias to call themselves.
9. Students will graph the number of students with each type of fingerprint.

MATERIALS:

"Steps to Follow", "Data Collection" and "Observations" sheets, 8 rolls of scotch tape, pencils, "Rap Sheets", The Human Body & How It Works,

STEPS:

1. Teacher chooses a trustworthy student to be the thief before class and fingerprints him or her. This student will choose an alias name for himself or herself.

2. When class comes in, teacher tells the class that someone stole the cover of the pencil sharpener, but left fingerprints behind!
3. Ask students how fingerprints would help find out who the thief was.
4. Ask students how they could gather their own fingerprints.
5. Explain that they will be the detectives and find out who the thief is.
6. Briefly tell students about the different types of fingerprints that they may have.
7. Teacher walks around and observes.
8. Call class back together and asks each group who they think the thief is.
9. Each group will have to defend their choice.
10. To conclude read p. 29 "What is skin for?" from The Human Body & How It Works.
11. Discussion follows.

KEY QUESTIONS:

1. How are fingerprints helpful to us?
2. Do we all have the same type of fingerprints?
3. Does anyone have the same exact fingerprint?
4. Who are some people who need to study fingerprints?
5. What can fingerprints tell us about all of us as people?
6. Can you think of some different ways of making a print of your fingerprints?

7. How did you come to the conclusion that (alias name of student) was the thief?

8. What is skin for?

**TEST QUESTIONS:**

1. What does skin do for us?

2. What can fingerprints tell us about all of us as people?

# Steps to Follow

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# Data Collect-tOil

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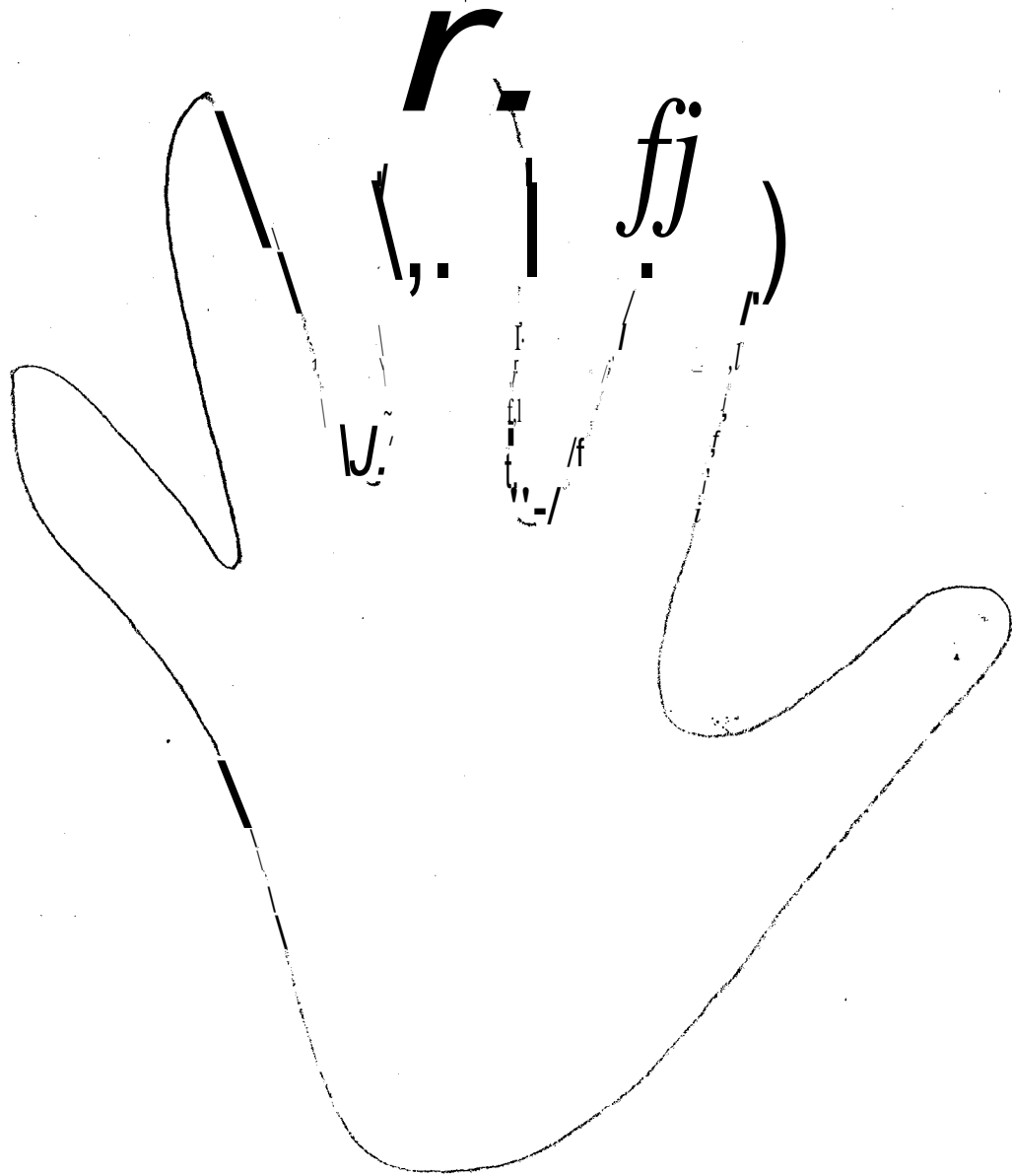
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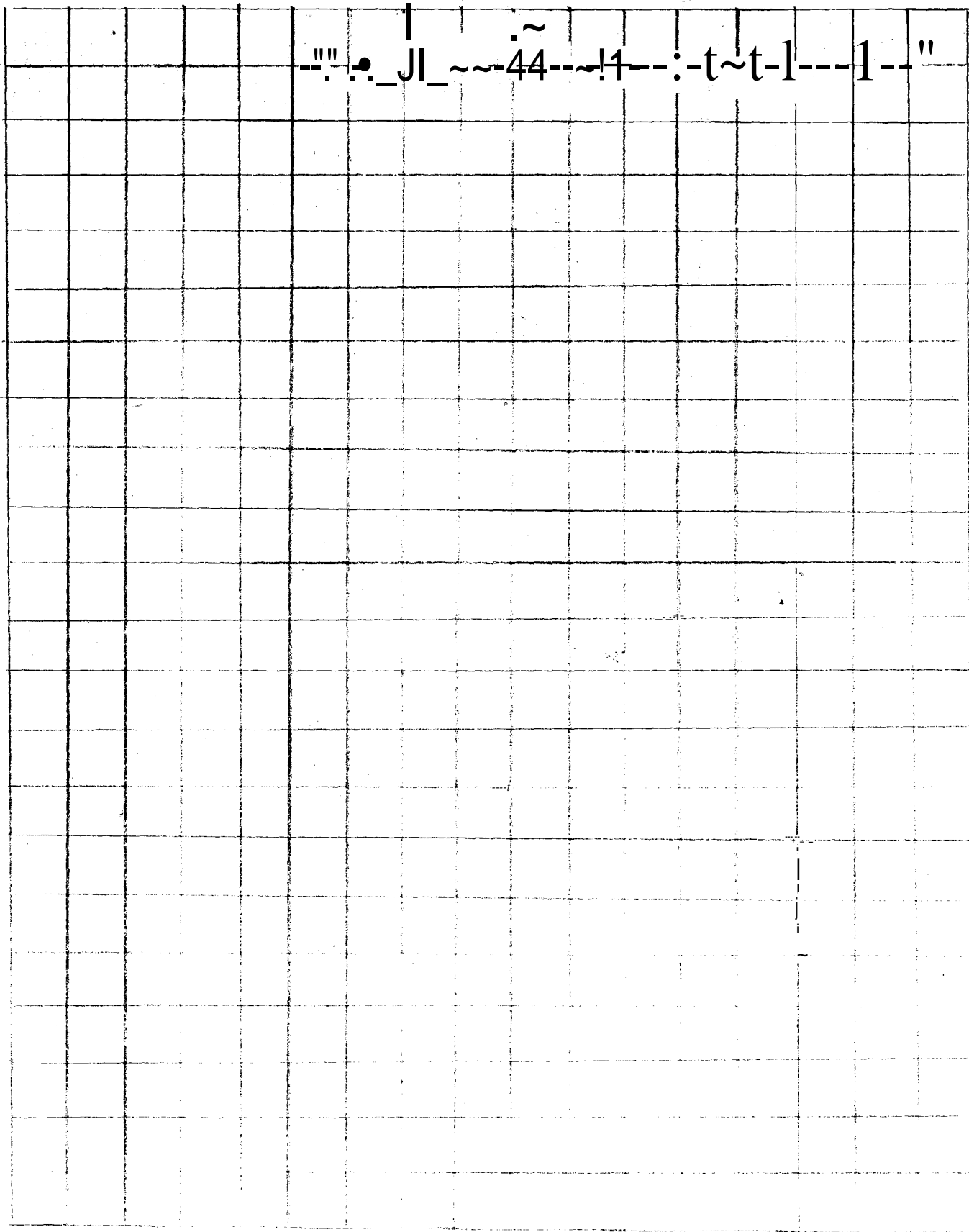
Name _____

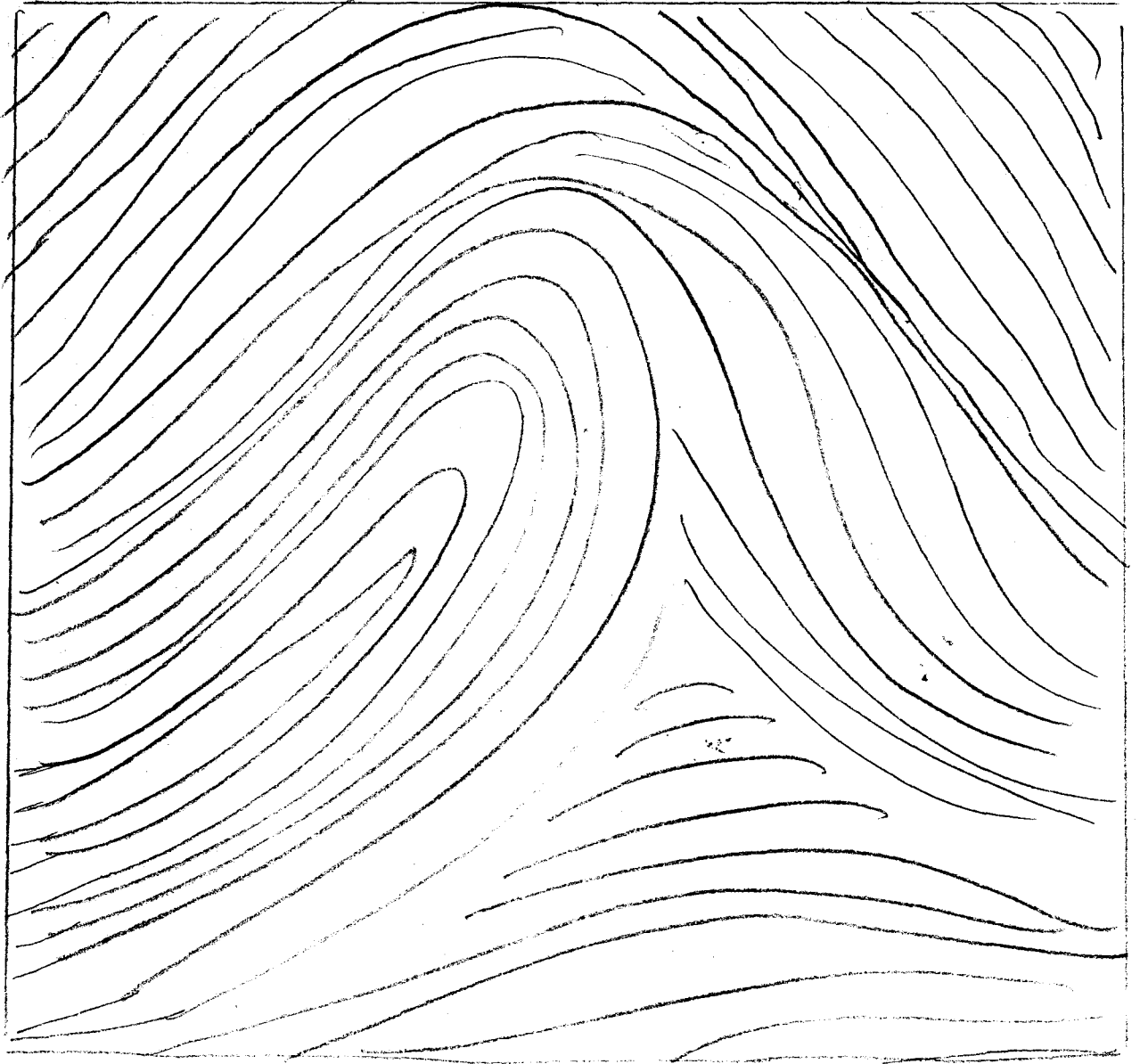
Observations



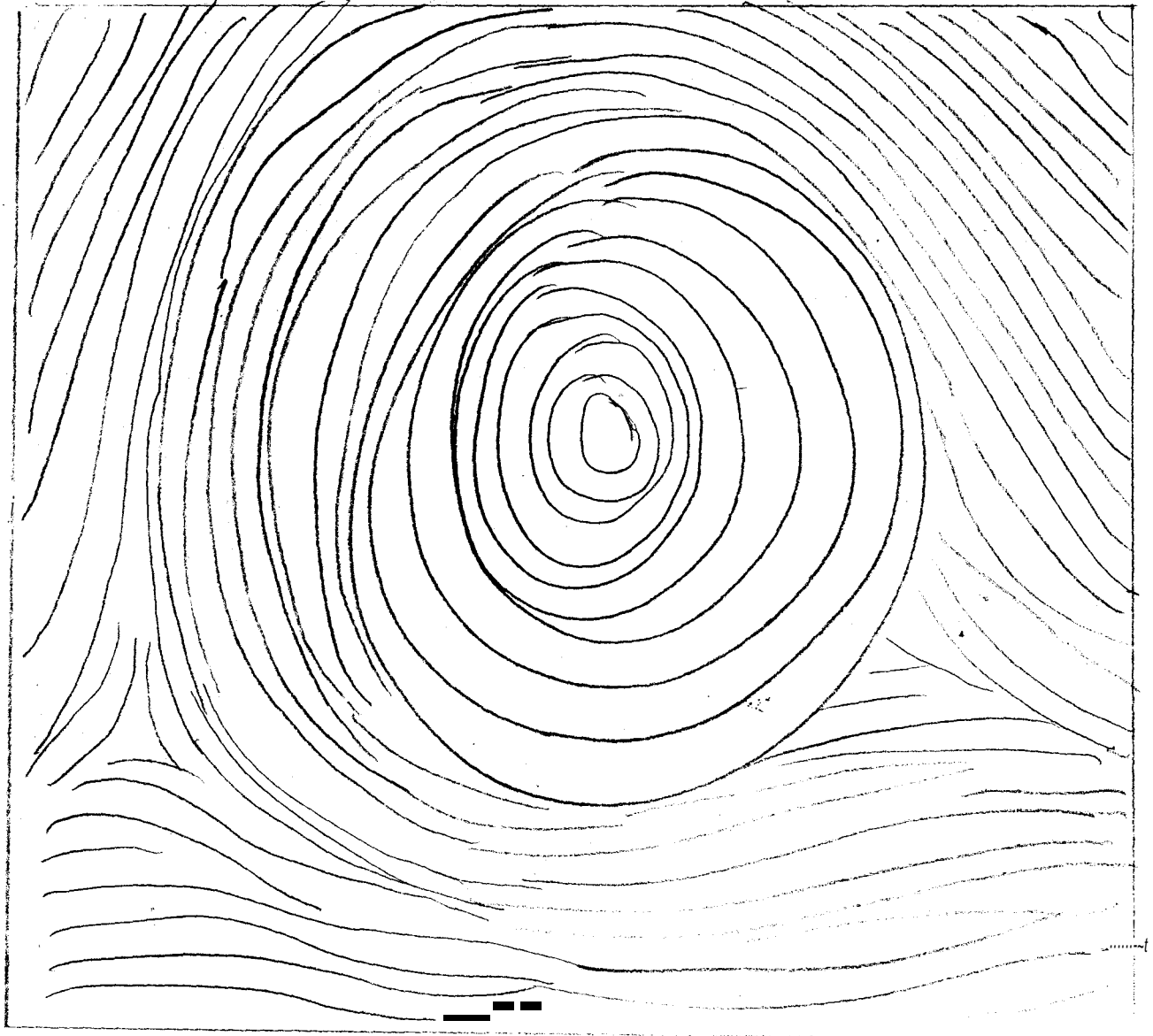
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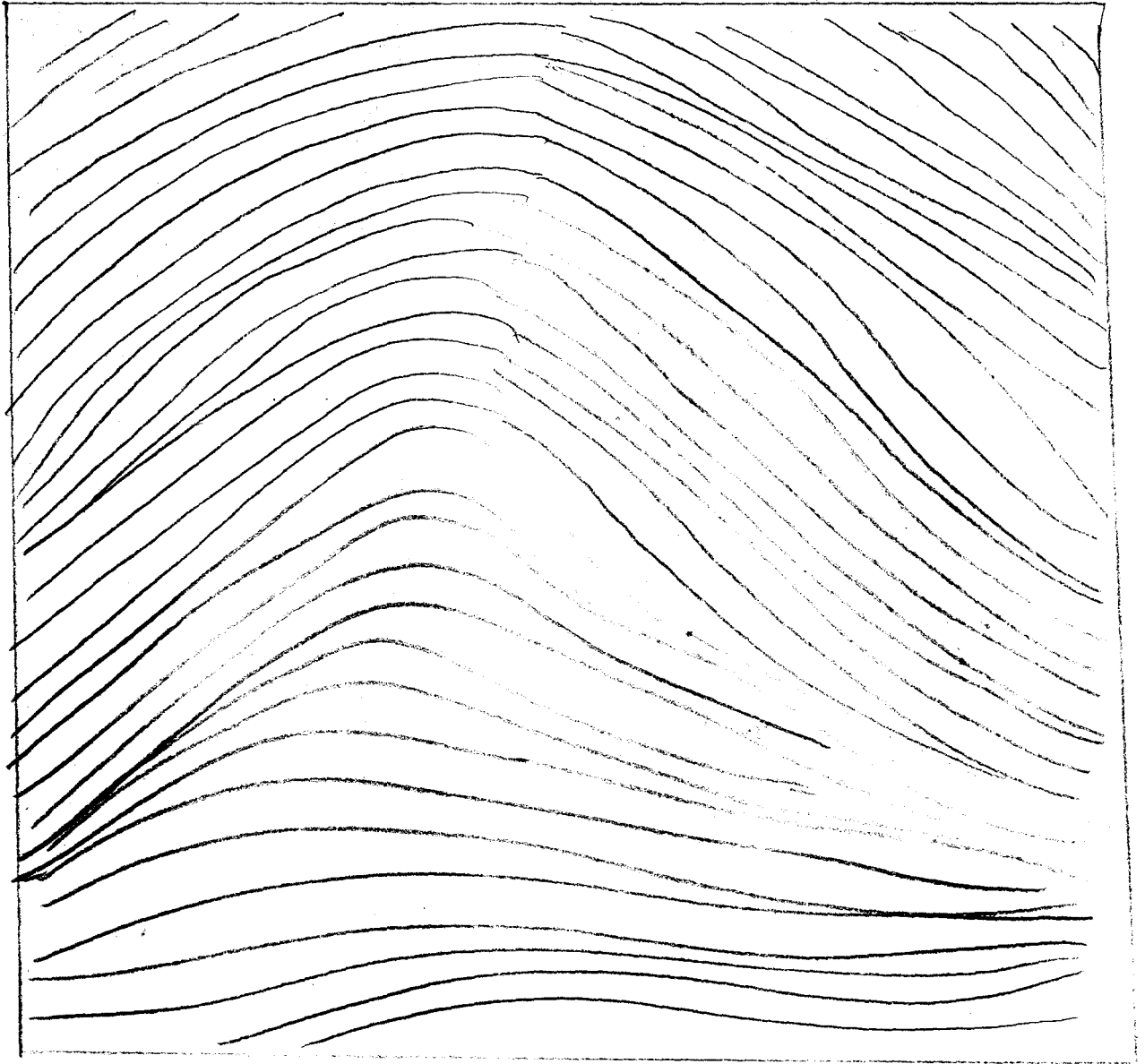




Loop



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ARCH

RATIONALE: It is important to stimulate students interest in science and use the scientific process to encourage higher level thinking through this activity which deals with examining bones and how they are connected.

OBJECTIVES:

1. Students will compare bones of animals to what they already know about their own anatomy.
2. Students will predict what kind of animals the bones are from.
3. Students will answer questions about bones prior to discussion of bones.
4. Students will collect data.
5. Students will present their results to the class.
6. Students will defend their results.
7. Students will evaluate the activity.

MATERIALS:

different types of animal bones, questions on cards by different types of bones, "Steps to Follow", "Data Collection", and "Evaluation" sheets

STEPS:

1. Teacher says, "Today you are famous zoologists and it is your job to identify from what kind of mysterious creatures these bones originated. You must also identify what portion of the animal the bones came from and how they operated when they were attached. You are in luck because there are some questions posted beside each bone to help you in your investigation" (Eickhoff, 1989, p. 2).

2. Hand out data collection sheets and allow students to begin.
3. Walk around and ask questions to encourage students to verbalize their ideas.
4. After each group has had a chance at every set of bones, have students share their data with class.
5. All groups must defend their predictions against other groups' predictions.
6. After discussing a set of bones, tell the students what type of bone it really is and how it works.
7. After discussing each set individually, and revealing the truth about each, have students communicate their evaluations of the activity to you.
8. Discuss their thoughts and ideas.

KEY QUESTIONS:

1. How do you think these two bones fasten together?
2. What was the function of these bones?
3. What kind of animal did this bone come from?
4. How big was the animal who had these bones?
5. Do you think these bones were used a lot? Why or why not?
6. What kind of food did this animal eat?
7. How do you know what type of bones these are?
8. How did the bones differ?
9. Why do some animals have bones that are lighter than others?
10. Of all the bones you have looked at, which one is more like your bones? (No test questions for this lesson).

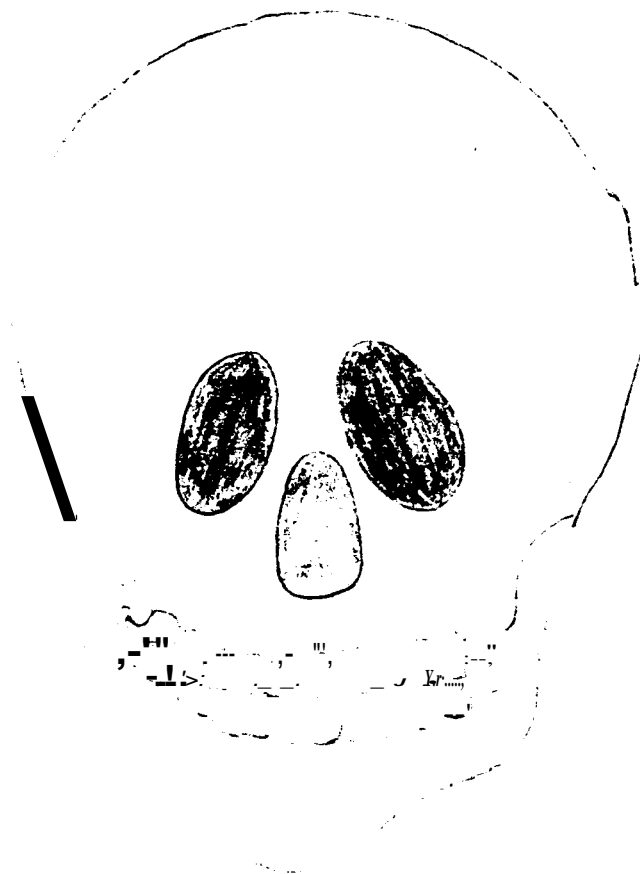
Steps to know

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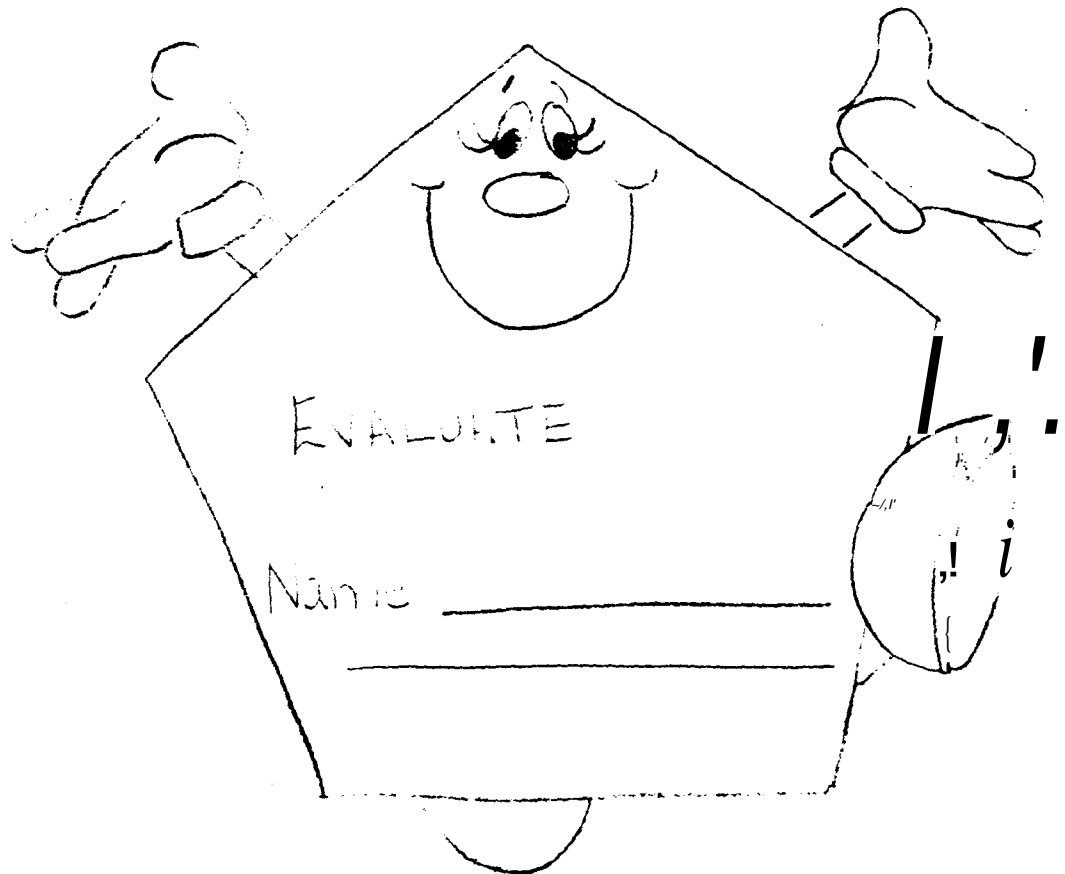
Collection Name _____



1. What did you like about this
activity?

2. What did you like about this
activity?

3. What would you do differently?



RATIONALE: Students should compare their bones to that of other animals to see the similarities and differences. It is important to integrate technology into the science curriculum to show how society is advancing.

OBJECTIVES:

1. Students will compare the human skeleton to the skeletons of other animals.
2. Students will identify vertebrates and invertebrates.
3. Students will practice using technology by viewing interactive video discs.
4. Students will collect data.
5. Students will classify 4 animals any way they want.
6. Students will defend their classifications.
7. Students will share data with class.

MATERIALS:

human skeletons, skeletons of other animals, interactive video discs and computer, "Data Collection Sheet", "Steps to Follow" sheet

STEPS:

1. Show students the skeleton of the human body.
2. Have 8 skeletons of different animals set up around the classroom.
3. Have students compare the bones of one of the animals to the skeleton of the human body.
4. When a group gets finished allow them to work on the computer with interactive video discs to gather information on 4 different animals.(Optical Data Corporation

1990) .

5. Students can print out this information to allow for the next group to use the computer.
6. After each group is finished, discuss results about each separate animal compared to the human skeleton.
7. Have each group come up and draw their classifications on board.
8. Discuss their classifications and why they classified in that way.
9. Read Skeletons! Skeletons! All About Bones by Katy Hall to class.
10. Discuss vertebrates and invertebrates.
11. Conclude by having each student tell something they have learned in this activity.

KEY QUESTIONS:

1. How are the animal bones similar to human bones?
2. How are they different?
3. How can you tell if an animal is a vertebrate or an invertebrate?
4. Why did you choose to classify your animals in that way?
5. Can you think of another way you could have classified your 4 animals?
6. What have you learned in this activity?

TEST QUESTIONS:

1. How can you tell if an animal is a vertebrate or an invertebrate?
2. If you had to classify a frog, a snake, a fish,

and a cat, how would you classify them?

Steps to Follow

1. Look at the skeleton of the human body and compare it to other animals' bones.
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3. When you are finished with Step 2, go to the interactive video displayer station and the teacher will help you set it up.
4. Print out information about 4 animals.
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Collection Sheet

Name _____

Type of
bone

Similar to human
bones because...

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RATIONALE: Students should know why they need a skeleton and the many uses bones have. Students can speculate if we will need a skeleton in later years if we keep going up in space. Issues such as space exploration will be better understood once they know why we have skeletons for our life on Earth.

OBJECTIVES:

1. Students will explain why they need a skeleton.
2. Students will describe what a bone is made up of.
3. Students will state where the largest and smallest bones in the body are.
4. Students will discuss uses of bones.
5. Students will predict what they would look like without any bones.
6. Students will illustrate what a bone is made up of and what they would look like without bones.
7. Students will share observations with the class.

MATERIALS:

white drawing paper, Muscles and Bones by Jane Saunderson, My Skeleton and Muscles by Jo Ellen Moore and Joy Evans, "Observation" sheets

STEPS:

1. Review previous material covered.
2. Ask students if they need a skeleton. Why or why not? Ask them to predict what they would look like without a skeleton.
3. Teacher reads p. 6 "Why you need a skeleton" from

Muscles and Bones by Jane Saunderson.

4. Discussion about material covered.
5. Teacher reads p. 8 "What are bones like inside?" from The Human Body and How It Works by Angela Royston.
6. Discuss material covered here and teacher starts experiment where you put chicken bones in vinegar for 3 to 4 days and see how they will bend. Have students predict what will happen to the bones at this time and when time allows during the next few days, discuss what really happened to the bones and why.
7. Have students illustrate what bones are made of and what they think they would look like without bones.
8. Share illustrations with class.

KEY QUESTIONS:

1. Do you need a skeleton?
2. What would you look like without a skeleton?
3. Why do you need a skeleton?
4. Do you think there will ever come a time when human beings won't need a skeleton?
5. What are bones like inside?
6. What do you think will happen to the bones in the vinegar?
7. What happened to the bones in the vinegar and why?

TEST QUESTIONS:

1. Why do you need a skeleton?
2. What is jelly-like material in the center of bones called?



OBSERVATIONS

N().me... _~ _____

RATIONALE: It is important for students to know how science has enabled us to understand how our body moves. The should know how the body moves because it is a part of them.

OBJECTIVES:

1. Students wil~ discover the different types of joints they have.
2. Students will compare joints in the human body.
3. Students will move parts of their body to see how their joints work.
4. Students will explain the different joints for different jobs the body has to do.
5. Students will demonstrate different joints.
6. Students will record observations.
7. Students will share observations with class.

MATERIALS:

Muscles and Bones by Jane Saunderson, My Skeleton and Muscles by Jo Ellen Moore and Joy Evans, "Steps to Follow" and "Observations" sheets

STEPS:

1. Teacher reads p. 14-15 "Different jobs" from Muscles and Bones.
2. Brief discussion.
3. Pass out "Steps to Follow" and "Observations" ' sheets and allow students to begin experimenting.
4. Observe students.
5. Draw class back together and discuss results.

6. Conclude by having students come up and demonstrate different joints.

KEY QUESTIONS:

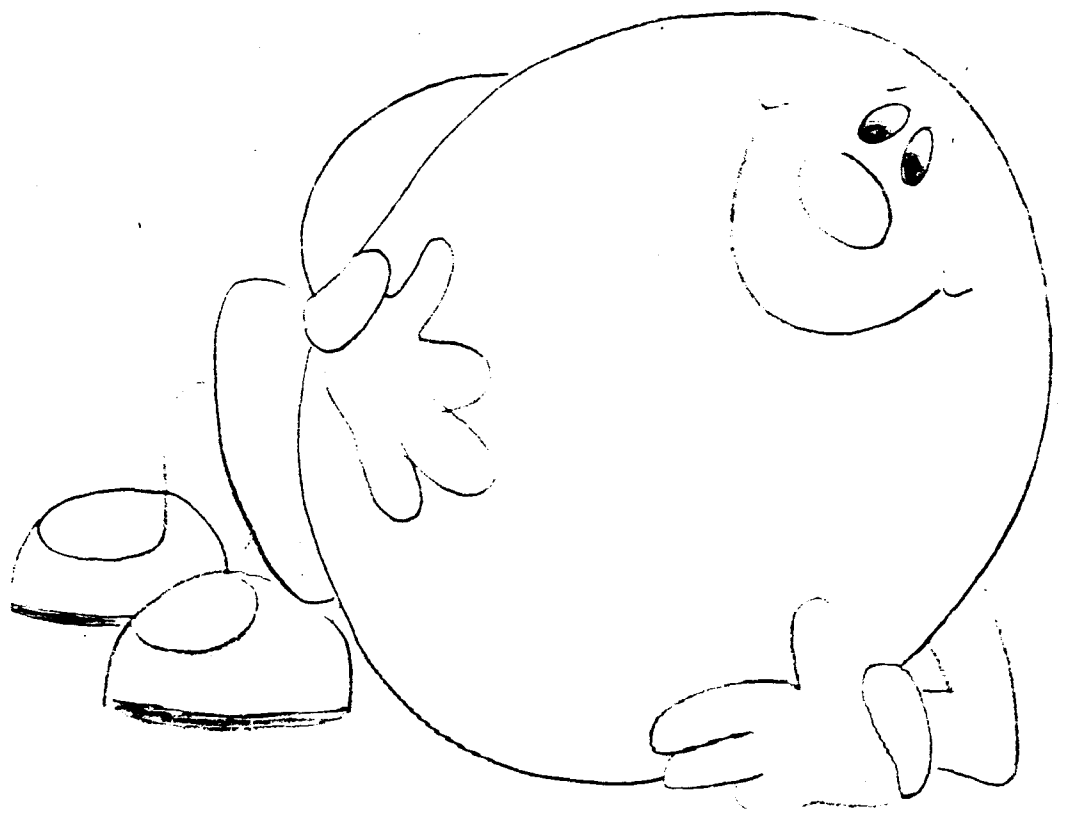
1. What type of joint does your knee have?
2. What type of joint does your hip have?
3. Why do we need different types of joints?

TEST QUESTIONS:

Same as above.

OBSERVATIONS:

}hi'f)C _--



Steps to Follow

1. Move your head to the left and right. What type of joint are you using?
2. Swing your arms back and forth. Now what type of joint are you using?
3. Bend down and stand up. What types of joints do you think you are using?
4. ~~Twist~~ ^{Nick} your wrists and ankles around. What type of joint are you using?
5. Be able to demonstrate how you use each type of joint.
6. Record Observations on observation sheet.

/ Verne

RATIONALE: It is important for students to know about how their muscles work so they will maintain healthy bodies. Also, by raising questions about their bodies teachers can increase students' knowledge and thirst for more knowledge.

OBJECTIVES:

1. Students will play "Simon Says".
2. Students will observe how muscles work.
3. Students will explain how muscles work.
4. Students will define what muscle is.
5. Students will record information.
6. Students will share information with class.

MATERIALS:

"Information sheet", You Can't Make a Move without Your Muscles by Paul Showers, Muscles and Bones by Jane Saunderson

STEPS:

1. Play "Simon Says" (Simon says make a face. Simon says sit down. Simon says pat your head and rub your stomach. Etc.)
2. When game is over, read You Can't Make a Move without Your Muscles.
3. Discuss material covered. Ask key questions here.
4. Explain the 3 types of muscle we all have. (Voluntary, Involuntary, and Cardiac).
5. Read p. 28-29 from Muscles and Bones, "The Way We Move" to get the concept across that we all move in our own unique way.
6. Have a few students walk across room and *see* if

they walk the same exact way.

7. Discuss material covered in lesson.

KEY QUESTIONS:

1. When do you use your muscles?
2. How do your muscles work?
3. Can you give examples of each type of muscle?(Voluntary, Involuntary, and Cardiac).
4. If you didn't have muscles, what couldn't you do?
5. Do muscles push or pull?

TEST QUESTIONS:

1. If you didn't have muscles, what couldn't you do?
2. Name two things you use your muscles for.
3. Your heart is a strong_____ muscle.
4. Do muscles push or pull?

ACTIVITY I: 13

RATIONALE: Students should know about stimulus/response in their bodies in order to understand cause and effect relationships in the world around them. Also, they should use all the knowledge gained in this unit to understand the stimulus/response reflexes they have.

OBJECTIVES:

1. Students will test the patellar reflex.
2. Students will test the plantar reflex.
3. Students will explain why they have reflex actions.
4. Students will record observations.
5. Students will explain why they have reflex actions.
6. Students will share conclusions with class.

MATERIALS:

32 toothpicks, "Steps to Follow" and "Observations and Conclusions" sheets

STEPS:

1. Review previous material. Ask "Do you have a healthy nervous system?" "Let's find out!"
2. Hand out "Steps to Follow" and "Observations and Conclusions" sheets and allow students to begin experimenting.
3. Walk around and observe students.
4. Gather class back together and discuss their observations and conclusions.
5. Conclude by having students write what they have learned in this activity on the back of the "Observations and Conclusions" sheets.

KEY QUESTIONS:

1. Do you have a healthy nervous system?

2. Do you remember what collects and sends messages throughout your body?

3. Where are your nerves located?

4. Where do nerves send their messages?

5. How fast do you think nerve signals travel?

TEST QUESTIONS:

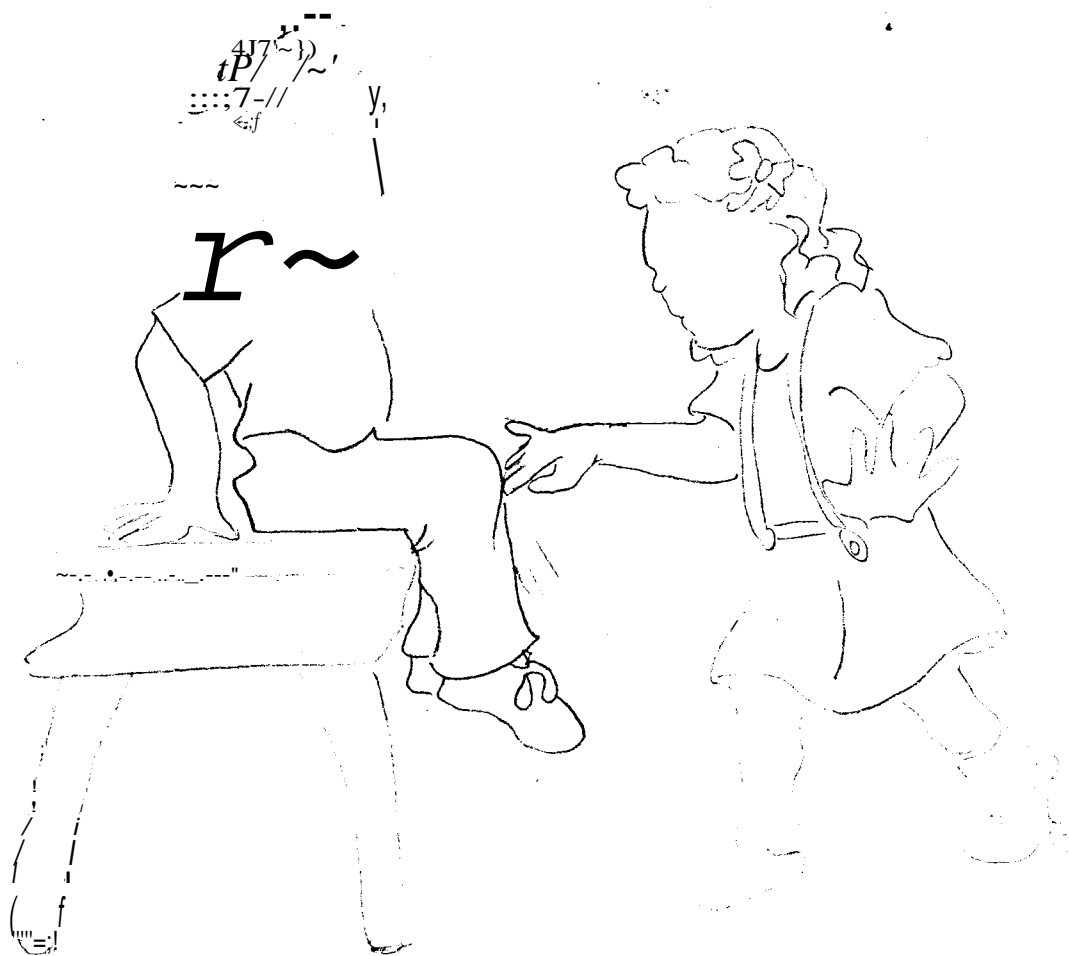
1. What sends messages to your brain when you tap someone's knee?

2. Where are your nerves located?

Steps to Follow

1. Gather these materials:
4 toothpicks.
2. Work with your partner.
3. One person sits on a desk with your legs hanging down.
4. Your partner will test your reflexes by tapping your leg just below the knee. What happened? If nothing happened, keep trying.
5. Next, you will test another one of your reflexes by having your partner remove a shoe and a sock. Your partner will gently stroke the bottom of your foot with a toothpick starting at the heel and moving towards the big toe. What happened to your toes?
6. Switch roles with your partner and repeat the activity.
7. Record observations and conclusions on the observations and conclusions sheet.

Observations and Conclusions by



| Week 1 | Monday | Tuesday | Wednesday | Thursday | Friday |
|------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Reading | Read <u>Helen Keller</u> .
Write a response to each chapter read. | Continue reading <u>Helen Keller</u> .
Discuss characters and setting. | Talk about the difficulties Helen is having and why she is having them. | Corrh'n«t~.aj
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~OJA.+: - Bra..i e. | !Yb.i'e bnv'l'e
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glit-e. |
| Math | Have children estimate how many cells will be on their slides later. | Have students share their estimations with class. | LUst-K on y.)qrJ
-probleYlls v..si~
(LPLA I?Jo..H "fS, | Use a variety of methods to add + subtract problems (Mental Math, Paper + Pencil, or using Manipulatives) | Ow/z on
;JA: /I-t:/'7 |
| Music/Health | Sing songs about the human body. | Role play of how white blood cells act. | Listen to songs and try + pick out the instruments being played. | Watch "Doctor DeSoto" movie. | Discuss how beneficial it is to brush your teeth regularly. |
| Science | Give background information about cells and tastebuds. | Students experiment with cells. | Tastebuds experiment. | Digestion lesson | Blood and heart lesson. |
| Social Studies | Read about how people all over the world eat to survive. | Watch movie about how people in other countries survive. | Write about how our society is different from the society in the movie. | Discuss major food groups. | Bring in examples from all the food groups and have party. |
| Lunch | - | - | - | - | - |
| Language Arts/Spelling | Introduce spelling words and some science words | Review spelling words + science words. | Spelling game to review. | Write a paragraph using 4 words from the Spelling List. | Test |
| Art | Draw a picture of what your cells look(ed) like on black construction paper using a white pencil. | Color cells with colored pencils. | Draw their tongues on pink construction paper and make puppets by glueing tongues on brown paper bags and decorating them. | Draw a picture of where food goes when it enters your mouth using colored chalk. | Trace an outline of your body on a big piece of paper. (Work with a partner) |
| P. E. | "The Thicket Game" (Project Wild) | "Muscoy Maneuvers" (Project Wild) | Role play what a white blood cell does to a disease germ. | Soccer | Favorite game of week |
| Dismissal | - | - | - | - | - |

| Week 2 | Monday | Tuesday | Wednesday | Thursday | Friday |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------|
| Reading | Go over characters, setting, summary and point of view. | Discuss listening for different purposes:
Directions
Entertainment
Announcements | Continue with chamois
USI- 'Irlin
dl<ij.-o.m.' | Finish reading <u>Helen Keller</u> .
Discussion. | Review <u>Helen Keller</u> and introduce <u>Helen Keller: the Picture Book</u> . |
| Math | Calculate how many hours per day the students listen. | Chowling
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-per c45 4ih-i
1, 'Stu(, | Have students graph how often they listen for the whole week. | Share "Qphs with class. | (FLU? - OIL
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| Music / Health | Play and sing the "Hokey Pokey" | Play music and have students tell what they think it is trying to say. | Sing songs about the human body. | Play "Simon says..." | -Guess: speaker-
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~ Cross. |
| Science.. | Review (2) 4- do
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etr" 12 le's&Qn. | Skin and fingerprints lesson
← → | | 113011~ lesson--- |
| Social Studies | Discuss what people did before television was invented. | Write a story trying to describe something to a person who has never seen it before. | Show movie about invention of television. | Compare today's society to that society. | Discuss what it would be like to have no televisions |
| Lunch | - | - | - | - | - |
| Language Arts / Spelling | Introduce Spelling words and some Science Vocabulary. | Review words and make up sentences using 10 spelling words. | Play spelling game to review. | Pretest | Test |
| Art | Test how they listen to directions by having them draw a figure you have guided them through by giving only verbal directions (Slowly) | Make clay dough handprints. | Take outline of your body and draw parts of the body gone over in class so far. | Share pictures of human body. | Take a shoebox and decorate it in any way to make an "I am unique" box. |
| P.E. | Soccer | Running track.
Count heart beats in 10 seconds. | Favorite game day | Test for flexibility | Kickball |
| Dismissal | - | - | - | - | - |

| Week 3 | Monday | Tuesday | Wednesday | Thursday | Friday |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Reading | <p>R. s. q. d. y 1-1/2</p> <p>liffll:: rh-2::</p> <p>P/c: ftAY-t & oK</p> <p>Conlf!(Ure, fhe... lwo</p> <p>b~(«S</p> <p>←</p> | | <p>Red l'''nIS</p> <p>abpg -fh~</p> <p>hUn1ol1 body</p> <p>lQ sftd{J1,l.s~</p> | <p>D/scuss</p> <p>rhyrYl.e •</p> <p>R-j ty1tJrL</p> <p>2. EYIS.</p> | Students can try and make a typographical poem using a part of the body. |
| Math | <p>fllo Ve ort,</p> <p>+0 3-(:ll,i~</p> <p>octdi +0YJ,</p> | <p>--ev'ICW Q~</p> <p>'fh~ WEdrk.</p> <p>~e~</p> | <p>(V\O'l'e, 01\, 40b</p> <p>3:CA":~/"</p> <p>s!A.bntlt,h on .</p> | Go over 3-digit addition + subtraction. Review | Quiz |
| Music/Health | <p>S/I</p> <p>Jq-llJten</p> <p>.Q~S</p> <p>(optt onQJ)</p> | Carve a pumpkin + talk about muscles needed to carve it. (optional) | Sing songs about skeletons. | Talk about how children in other cultures dance. Teach a Greek dance. | Continue teaching Greek dance. |
| Science.. | <p>S(e IEN vs:</p> <p>l-esson.</p> | Muscles lesson | Joints lesson and Review. | Reflex actions lesson and review. | Test |
| Social studies | Introduce archaeology. | Talk about mummies and bone artifacts. | Show movie on Egyptian mummies and pyramids. | Discuss how Egyptians were preserved and how they built the pyramids. | If you could have a time capsule, what would you put in it? |
| Lunch | - | - | - | - | - |
| Language Arts/Spelling | Introduce Spelling words and some Science Vocabulary. | Review words and use words to make a story as you go around the room. | Play Spelling game and review. | Pretest | Test |
| Art | Cut out pictures of people in magazines showing action and make a collage. | Discuss how people in pictures can move like that as they share their collages. | Cut out a picture of your foot and decorate it any way you want. | Share drawings. Start making murals in groups, of anything related to the human body. | Finish murals. |
| P.E. | Try counting resting heartbeats. | Play the "Hokey Pokey" | Soccer | Dodgeball | Kickball |
| Dismissal | - | - | - | - | - |

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